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**PARTICLES IN PHRASAL VERBS— A COGNITIVE
LINGUISTIC APPROACH TO MEANING
CONSTRUCTION IN THE EFL CONTEXT**

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PhD

2018

**PARTICLES IN PHRASAL VERBS— A COGNITIVE
LINGUISTIC APPROACH TO MEANING
CONSTRUCTION IN THE EFL CONTEXT**

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of the requirements of the
University of Northumbria at Newcastle
for the degree of
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Social Sciences

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Abstract

This study aimed to investigate the way in which Mandarin Chinese-speaking English learners construct meanings on three opposite sets of particles, consisting of 'in'-'out', 'on'-'off', and 'up'-'down' within thirty 'selected' phrasal verbs via three cognitive linguistic approaches, i.e. image schemas, categorisation, and frame semantics in order to shed light on the context of Cognitive Linguistics and EFL.

Forty-eight participants were recruited from universities in the UK and Taiwan for this study and all of them share the same L1, i.e. Mandarin Chinese. The present study utilized a qualitative-based methodology, comprising a questionnaire, a pre-test, a set of worksheets as teaching and learning materials used in a series of training sessions with the three cognitive linguistic approaches, a post-test, and an interview. A questionnaire was used to explore EFL learners' leaning difficulty and learning strategies when it comes to the acquisition of phrasal verbs. A comparison of the results emerging from the pre-test and post-test and an analysis of the set of worksheets were employed to measure and evaluate the effects of cognitive linguistic approaches on three training groups (the Image schemas Training Group, the Categorisation Training Group, and the Frame Semantics Training Group) and also to identify the similar and unique meaning construction on particles in phrasal verbs between English and Mandarin Chinese. In addition, an interview with the participants from the three training groups was conducted to investigate the strengths and weaknesses of the use of cognitive linguistic approaches in the acquisition of particles in phrasal verbs.

Results demonstrated that none of the cognitive linguistic approaches was better than the others adopted in this study. The thesis discusses some aspects of the findings: (1) the similar and unique patterns of meaning construction on particles in phrasal verbs between native English users and Mandarin Chinese-speaking EFL learners, (2) the benefits of adopting cognitive linguistic approaches; (3) the types of difficulty that have remained after receiving the training sessions.

This study makes several contributions to the practical application of cognitive linguistics and EFL pedagogical design. Despite some limitations, the study suggests that raising awareness of similar and unique meaning construction on particles in phrasal verbs between two languages via cognitive linguistic approaches can play a key role in assisting L2 learners to understand phrasal verbs.

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List of abbreviations

CA	Contrastive Analysis
EAP	English for Academic Purpose
EFL	English as a Foreign Language
ICMs	Idealised Cognitive Models
L1	First Language
L2	Second Language
LGBT	lesbian, gay, bisexual, and transgender
RQ1	Research Question One
RQ2	Research Question Two
RQ2A	Research Question Two A
RQ2B	Research Question Two B

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Declaration

I declare that the work contained in this thesis has not been submitted for any other award and that it is all my own work. I also confirm that this work fully acknowledges opinions, ideas and contributions from the work of others.

Any ethical clearance for the research presented in this thesis has been approved. Approval has been sought and granted by the Faculty Ethics Committee/ University Ethics Committee/ external committee on 20th January 2017.

I declare that the Word Count of this Thesis is 88118 words.

Name: Hui-Ching Lin

Signature:

Date: 26th September 2018

Chapter 1 Introduction

There has been much interest recently in the concept of phrasal verbs and its relevance. (Condon, 2008; Mahpeykar & Tyler, 2015; McCarthy & O'Dell, 2004; 2008; Rudzka-Ostyn, 2003). Unlike earlier work, the focus of this study is to explore particles in phrasal verbs within Cognitive Linguistics by adopting the theory of image schemas, categorisation, and frame semantics. Using a wide array of data collection methods, I first investigate the learning difficulty and learning strategies that Mandarin Chinese-speaking English learners have when seeking to understand particles in phrasal verbs. Second, I examine the similar patterns and unique variations in terms of meaning construction on particles in phrasal verbs between English and Mandarin Chinese. Third, I consider how and to what extent each of the cognitive linguistic approaches adopted in this study can facilitate EFL learners' understanding of phrasal verbs. In this introductory chapter I explain how my interest in Cognitive Linguistics and particles in phrasal verbs developed; describe the theoretical framework underpinned, and give a brief outline of the research questions which I draw on.

1.1 Motivation for the Study

The issue of understanding English phrasal verbs in the EFL context has received considerable critical attention. Most cognitive linguistic literature centres on a contrastive analysis between European languages and English (Boers & Lindstromberg, 2008). Knowing that there was already a substantial body of work not only on Cognitive Linguistics but also on phrasal verbs, I wished to explore this discourse type further in a context which would satisfy my preference for research which might eventually be of practical value. I became aware, from my prior working experience in higher education, that English phrasal verbs involving multiple meanings were crucial for Mandarin Chinese-speaking English learners, and thus the requirement for a study to target participants drawn from amongst those learners of English to meet this need.

The past forty years have seen increasingly rapid advances in the field of Cognitive Linguistics. A considerable amount of literature has examined the effect of metaphor on semantic values (Lakoff & Johnson, 1980; 2003; Langacker, 1987; 2008; Talmy, 2000; Tyler & Evans, 2003) to reflect a separate assumption from Chomskyan linguistics, focusing on syntactic construction. The use of metaphor is considered ubiquitous and reflecting the cognitive mechanism operating behind the human mind.

Another main strand of the entire discipline of Cognitive Linguistics is concerned with the concept of language motivation. Cognitive semantists (Brugman & Lakoff, 1988; Lindner,

1981; Tyler and Evans, 2003) suggest that people conceptualise the metaphorical extensions of prepositions derived from a spatial sense, also known as a prototypical meaning. Nevertheless, its application to the field of second language acquisition (SLA) and foreign language teaching are only beginning to be examined. Highlighting the importance of a particle within a phrasal verb in terms of foreign language acquisition can be one of the areas that benefit from the collaboration between Cognitive Linguistics and foreign language teaching and learning. The acquisition of phrasal verbs is notorious for its lack of transparency and randomly arranged particles and these features further cause L2 learners' avoidance or low frequency of use. These are regarded as learning difficulty posed by understanding phrasal verbs. If L2 learners can enjoy a raised awareness of the semantic network of a particle within a phrasal verb, ranging from the meanings of space, time and metaphor, we can assume that teaching and learning phrasal verbs might be implemented in a more fulfilling manner. According to Lu & Sun (2017: 159), 'Cognitive linguistics has shown that polysemies are cognitively motivated and emphasizes that prepositions in PVs (phrasal verbs) have much to do with metaphors. Thus, the in-depth understanding of connections of the particles assists and facilitates the acquisition of PVs.' This viewpoint has also been proposed by other scholars (Kurtyka, 2001; Lakoff & Johnson, 1980) that the more important element in a phrasal verb is usually the particle.

Despite the recognition of the importance of phrasal verbs in terms of the field of Cognitive Linguistics and foreign language teaching and learning, it seems that there is a need to understand how Mandarin Chinese English learners construct meanings on particles in phrasal verbs and to what extent cognitive linguistic approaches can exert beneficial effects on evoking these learners' understanding. In light of all these points, my own initial findings about the application of cognitive linguistic approaches to the acquisition of phrasal verbs might be of some value in practical implications, such as the field of EFL and applied linguistics.

1.2 Purpose of the Study

My intention at the outset of this research is to look critically at the three cognitive linguistic approaches, i.e. image schemas (Johnson, 1987; Lakoff, 1987; 1990), categorisation (Lakoff, 1987; Taylor, 2003), and frame semantics (Fillmore, 1975; 1977; 1982; 1985a; Fillmore & Atkins, 1992) employed in this study, in the case of understanding a set of particles in phrasal verbs. A phrasal verb is a combination of a main verb and an adverbial particle or a preposition that represents a single unit to express a lexical concept within a syntactic structure (Torres-Martinez, 2015). The term 'particle' is adopted in this study to commonly refer to the functions of an adverb or a

preposition in a phrasal verb. The definition of 'particle' and 'phrasal verb' is explained in detail in Chapter 2.

In accordance with statistical data presented in Schmitt and McCarthy's (1997) study, some 'selected' phrasal verbs have been chosen for this present study, consisting of the five most frequently occurring main verbs: 'come', 'go', 'get', 'put', and 'take' combined with six commonly used particles: 'in', 'out', 'on', 'off', 'up', and 'down' to form a list of thirty phrasal verbs. An observation has been made that there exists an opposite spatial relationship amongst these six particles. Six target particles mentioned above are, thus, categorised into three pairs of particles: 'in'-'out', 'on'-'off', and 'up'-'down', in a more systematic fashion, rather than a list of phrasal verbs to be explored. The concepts of the six target particles introduced in this study have been borrowed from Rudzka-Ostyn's (2003) textbook: *Word Power: Phrasal Verbs and Compounds, A Cognitive Approach* and adapted for design as a set of teaching and learning materials in order to make it easier for L2 learners to understand particles in phrasal verbs.

It is hoped that this project can shed light on the ways to improve and simplify Mandarin Chinese-speaking L2 learners' acquisition of phrasal verbs by means of cognitive linguistic approaches. I do not attempt to describe which cognitive linguistic approach is better than the others; rather, my intention is to explore the facilitating role that the cognitive linguistic approaches can play in assisting EFL learners to disentangle the myth of phrasal verbs. Each of the cognitive linguistic approaches adopted in this study will be, therefore, scrutinised respectively and evaluated collectively on the basis of the quantitative and qualitative data collected for this investigation.

1.3 Research Questions

As mentioned above, my primary purpose is, firstly, to investigate how Mandarin-speaking EFL learners construct meanings on particles in phrasal verbs in terms of learning difficulty posed and learning strategies adopted before the cognitive linguistic approaches (image schemas, categorisation and frame semantics) are introduced; secondly, to examine the extent to which these cognitive linguistic approaches can help L2 learners in the construction of meanings of phrasal verbs concerning the concepts of space, time and metaphor during and after the process of employing a new approach.

Accordingly, two major research questions are formulated as follows. For the purpose of answering the second research question more precisely, it is divided into two sub-research questions in order to assess to what extent and in which ways that the three

cognitive linguistic approaches adopted in this study can facilitate L2 learners' understanding of particles in phrasal verbs:

1. What are the learning difficulty faced and learning strategies used by Mandarin Chinese-speaking English learners while encountering English phrasal verbs?

2. In terms of the three cognitive linguistic approaches, i.e. image schemas, categorisation, and frame semantics adopted in this study, what are the benefits and limitations that each of the cognitive linguistic approaches has in a foreign language classroom, and what facilitating role can these cognitive linguistic approaches play in improving Mandarin Chinese EFL learners' meaning construction on particles in phrasal verbs?

2A. What are the similarities and differences of meanings of English particles in phrasal verbs constructed between native English speakers and Mandarin Chinese-speaking English learners, and how can meaning construction between English and Mandarin Chinese shed light on the improvement for the acquisition of phrasal verbs?

2B. How can the overall findings be used to address the strengths and weaknesses of each of the cognitive linguistic approaches employed in this study, and how can they be used to improve their future applications?

The research data in this thesis is drawn from six main sources: the questionnaire survey, the pre-test, the video-recorded training sessions with the three cognitive linguistic approaches instructed, the recorded linguistic data, the post-test and the interview. This project offers new proposals for teaching and learning particles in phrasal verbs and provides some important insights into research on Cognitive Linguistics by exploring various strands of this discipline in the field of foreign language teaching and learning. However, due to practical constraints this thesis cannot provide a comprehensive review of all the linguistic knowledge of particles and phrasal verbs in use.

1.4 Organisation of the Study

This thesis has nine chapters. In this chapter, I have briefly:

- introduced the theoretical framework on which the study is based;
- outlined the development of my interest in English phrasal verbs, particularly particles within phrasal verbs;

- provided background information about Mandarin Chinese-speaking L2 learners in the EFL context;
- indicated what I set out to achieve in this study.

The remaining chapters are organised as follows. Chapter 2 contextualises the study in the relevant literature. Chapter 3 is an account of the research methodology and method. In Chapter 4, the results of the questionnaire survey and the pre-test are reported and initially discussed. Chapter 5 reports and discusses the cognitive linguistic approach of image schemas in the context of teaching and learning particles in phrasal verbs. This is followed by reviewing the cognitive linguistic approach of categorisation in Chapter 6, and the cognitive linguistic approach of frame semantics in Chapter 7. In Chapter 8, the findings of the post-test and the interview analysed from the data collected for the three training groups are reported and discussed. Finally, in Chapter 9 a detailed evaluation of the three cognitive linguistic approaches in EFL, the implications for practical applications, and an account of the pedagogical meanings are considered in the context of a review of this study.

Chapter 2 The Cognitive Linguistic Approach of Image Schemas, Categorisation, and Frame Semantics to Meaning Construction on Particles in Phrasal Verbs

The theoretical underpinnings of this study are reviewed in this chapter in order to address the research questions. First, there is a review of traditional teaching and learning approach and the general learning difficulty posed by EFL learners when they construct meanings on phrasal verbs. Second, the relationship between meaning construction and Cognitive Linguistics, followed by Conceptual Metaphor Theory (Lakoff & Johnson, 1980; 2003) is introduced. Third, three cognitive linguistic approaches, i.e. image schemas (Johnson, 1987; Lakoff, 1987; Mandler, 2004), categorisation (Lakoff, 1987; Rosch, 1975, 1977, 1978; Rosch & Mervis, 1975), and frame semantics (Fillmore, 1975, 1977, 1982, 1985a; Fillmore & Atkins, 1992), are discussed in order to gain more insights into how to facilitate Mandarin Chinese-speaking English learners' understanding of particles in phrasal verbs. Accordingly I will extend my review of the theoretical framework underlying the design of my teaching and learning materials used in training sessions, which are intended to encourage EFL learners' language development of phrasal verbs.

2.1 Meaning Construction on English Phrasal Verbs

English phrasal verbs belong to one of the categories under the term 'multiword verbs'. One of the central issues in this study is to analyse phrasal verbs with some selected adverbial particles or prepositions ('in', 'out', 'on', 'off', 'up', and 'down'). Hence, what these multiword verbs cover needs to be reviewed first. According to Cappelle *et al.* (2010), multiword verbs are lexical units that can be understood as wholes without analysing grammatical construction or associating verb-particle semantic relationships. However, the grammatical construction of multiword verbs are complex and sophisticated. Quirk *et al.* (1985: 1150) suggest that multiword verbs can be classified into four main categories. These are: (1) phrasal verbs (including three sub-categories: intransitive phrasal verbs, transitive phrasal verbs, and free combinations), (2) prepositional verbs, (3) phrasal prepositional verbs; (4) lexicalised verbal forms. The structures and examples of these categories are elicited as follows:

- Intransitive phrasal verbs: main verb + adverb / preposition
Example (a): She sat down suddenly.
- Transitive phrasal verbs: main verb + direct object + adverb or main verb + adverb + direct object
Example (b): She picked the box up.
Example (c): She picked up the box.

- Free combinations: this categories is different from transitive phrasal verbs. Quirk *et al.* (1985: 1152) point out that the main verb in free combinations preserves its own individual meaning and allows for a replacement of the particle or adverb. In addition, the particle can be topicalised.
Example (d): She headed out the huge door of Lipman Building.
Example (e): 'So out went the candle, and we were left darkling'. (William Shakespeare, *King Lear*)
- Prepositional verbs: main verb + preposition + prepositional object / main verb + preposition + indirect object + preposition + prepositional object
Example (f): She finally made up her mind.
Example (g): That terrible image has robbed her of sex appeal.
- Phrasal prepositional verbs: main verb + adverb + preposition + direct object
Example (h): I am looking forward to seeing you.
- Lexicalised verb forms: main verb + adjective + preposition + prepositional object
Example (i): Don't play dumb with me, Jonathan!

The grammatical structures of multiword verbs are complex, since they involve different and overlapping uses of adverbs and prepositions. Syntactic patterns of phrasal verbs do not seem to cause more confusion for EFL learners than semantic understanding, as it tends to be the semantic values which are more challenging. Hence, I refer all the multiword verbs analysed in this study to 'phrasal verbs' as they are commonly used in the EFL context; the term 'particle' is chosen to cover the functions of both 'adverb' and 'preposition'. Similarly, Yasuda (2010) also replaces the 'multiword verbs', the 'adverbial particles' and the 'prepositions' with the term 'particles' and 'phrasal verbs' in a case study of research into how Japanese EFL learners acquire phrasal verbs via conceptual metaphors.

Having defined what is meant by multiword verbs, I will now move on to discuss some teaching and learning approaches to phrasal verbs and leaning difficulty addressed by EFL learners; the application of Cognitive Linguistics and particularly one of the main strands in the theories, i.e. Conceptual Metaphor Theory to demonstrate the fundamental principles underpinned in this project.

2.1.1 Pedagogical Approaches to Teaching English Phrasal Verbs and Learning Difficulty faced by EFL learners

Traditional methods of teaching and learning English phrasal verbs centre on rote learning, i.e. memorisation, since EFL teachers and learners often consider the meanings of English phrasal verbs to be arbitrary (e.g. Chen & Lai, 2013). In other words, it is difficult

for EFL learners to associate forms with meanings. Nevertheless, the recent development of Cognitive Linguistics has advanced our understanding of the mechanism of conceptual metaphor that underlies the motivation behind particles, and which can be used to shift the ways of teaching and learning phrasal verbs via raising metaphorical awareness. We can take the fixed expression 'beyond words' (*McGraw-Hill Dictionary of American Idioms and Phrasal Verbs*, 2002) as an example to refer to 'more than one can say', as in the sentence 'I don't know how to thank you. I'm grateful beyond words.' At times, people are constrained by words to express their feelings and emotions. Cognitive Linguistics offers an explanation of the fixed expression 'beyond words' to exhibit that words represent 'prompts' to conceptualise meanings, rather than convey meanings themselves. The writer, therefore, takes Cognitive Linguistics into consideration when it comes to teaching and learning particles in phrasal verbs in EFL.

Some scholars (Lu & Sun, 2017; Yasuda, 2010) consider learning and understanding phrasal verbs is a problematic issue for L2 learners. The potential learning difficulty may occur in the process of acquiring phrasal verbs due to EFL learners' unfamiliarity with meaning construction on phrasal verbs. For example, some studies (Gardner & Davies, 2007; Liao & Fukuya, 2004; Neagu, 2007; Rudzka-Ostyn, 2003) found that even EFL learners at advanced level tend to avoid using English phrasal verbs, owing to their semantic complexity. Avoidance is a common strategy that language learners adopted in language learning or communication. However, there are some pros and cons in employing this strategy. Language learners tend to opt in favour of familiar words or vocabularies in communication to prevent errors in order to continue their communication with others. Some scholars (Barekat & Banisady, 2014; Ellis, 1994; Krashen, 1982; Laufer & Eliasson, 1993; Liao & Fukuya, 2004; Schachter, 1974; and Tarone, 1977) have conducted a series of relevant researches in this field. The studies of Liao and Fukuya (2004) and Zhang (2007) both show that Chinese learners of English at the intermediate level have a tendency to avoid using phrasal verbs. In addition, the metaphorical senses of phrasal verbs are used less than the literal senses. Therefore, one of the key strengths of this study can be its application to encourage Mandarin Chinese-speaking English learners to use phrasal verbs in oral and written communication as native English speakers do, when they develop the cognitive concepts of particles within phrasal verbs. For Mandarin Chinese-speaking English learners, the multiple meanings of English phrasal verbs and the construction of similar and unique meanings between English and Mandarin Chinese may cause learning difficulty in identifying the meanings of phrasal verbs (Li & Xu, 2015).

2.1.2 Meaning Construction in Cognitive Linguistics

Cognitive Linguistics helps account for embodiment and human conceptualisation, regarding the aspects of meaning construction universally and the concepts of cross-linguistics specifically. To construct meaning, from the cognitive linguistic viewpoint, is to prompt linguistic expression based on the conceptual process and encyclopaedic knowledge. A central assumption of Cognitive Linguistics lies in embodiment, in contrast with Noam Chomsky's Generative Grammar which does not take human bodies and human experience into account while studying language. In the view of human embodiment, this entails the relationships between human mind and language. Embodiment covers three main assumptions: embodied experience, embodied cognition and experiential realism, all reflecting how the human mind interacts with the physical environment that surrounds people.

When it comes to embodied experience, cognitive linguists propose that human beings have a species-specific viewpoint of the world because of our unique physical body structures. For example, our experience of gravity is different from birds' experience of gravity. Embodied cognition establishes the relationship between language and mind. From this cognitive linguistic perspective, language is used to articulate what we perceive or conceive, and the concepts we perceive and conceive emerge from our embodied experience. Mark Johnson's (1987) theory of image schemas is based on this type of human pre-conceptual experience, such as the concepts of CONTACT, CONTAINER and BALANCE. Lakoff and Johnson both argue that image schematic concepts can be systematically extended further to construct abstract concepts in terms of understanding conceptual metaphors, and this will be discussed later in this chapter. In the case of experiential realism, this entails cognitive linguists holding a view of a subjectivist approach to observe the world around us. The view of experiential realism does not deny objective reality; however, Cognitive Linguistics argues that human construal of the world derives from our own worldview, that is, our own individual and unique embodied experience. The reality of the world is required to adjust so as to fit the nature of human embodiment.

Cognitive linguists aim to identify and study a universal set of cognitive principles that rule linguistic patterns. The concepts of 'space' and 'time' are regarded as fundamental concepts in human cognition. In terms of the concept of 'space' in relation to cross-linguistic variations some empirical evidence, such as Bowerman and Choi's (2003) study, has shown that English speakers and Korean speakers conceptualise and categorise spatial senses distinctly. Their study found that a particular language speaker depicts similar experiences in a different fashion. Returning to the concept of 'time', Yu (1998)

illustrates different conceptualisation between English and Mandarin Chinese. English speakers conceptualise 'earlier' as 'before' and 'later' as 'after', whereas Mandarin Chinese speakers conceptualise 'earlier' as 'higher' or 'upper' and 'later' as 'lower'. Therefore, it is crucial for foreign language educators to raise L2 speakers' awareness of distinct concepts of 'space' and 'time' concerning cross-linguistic factors when acquiring English particles.

As for the application of cognitive linguistic approaches to language pedagogy, Holme (2012) points out several problems existing in Cognitive Linguistics. He argues that scholars in this field have not reached a consensus on the theory; the research of discourse is fragmentary on its methodology. The fact is that Cognitive Linguistics is a broad domain, covering distinctive theories and approaches. For example some notions, such as 'domain' or 'frame', are not unified and reveal the existence of overlapping terminology. Apart from these overlapping notions, some disagreements have arisen concerning cognitive frameworks. For example, critics question the ability of Conceptual Metaphor Theory to provide sufficient linguistic data (Evans, 2004; Stern, 2000), or to underestimate the importance of contextual prompts (Leezenberg, 2001; Stern, 2000).

Conversely, proponents offer some empirical data to refute the arguments. For instance, Littlemore (2009) uses language materials taken from corpus data (BNC) to teach metaphorical meaning extensions effectively in her classroom. She also uses the prototype theory, one of the main strands in categorisation theories, to help account for the effectiveness of teaching metaphorical meaning extensions to L2 learners. Boers *et al.* (2004) supports the uses of Cognitive Linguistics in the language classroom and states that 'Indeed, research shows that introducing learners to the prototypical sense of figurative words results in better long-term retention than comparable methods that focus on contextual cues.'

The more recent developments in Cognitive Linguistics emphasizes the important role of metaphor in a range of genres, viewing metaphor research in multimodal discourse (Hampe, 2017 ; Semino, E & Demjén, Z, 2017), such as in the context of health care, language teaching and learning, commercial advertising and so forth. The aim of this new perspective is to integrate main insights into metaphor theory and applications into a complementary study. In the case of the relevance of this PhD study and metaphor, literature can be found in Littlemore's (2017) study. She discusses a detailed account of the use of metaphor research in education in terms of written and spoken form or even images and gestures. In addition, three types of research methods also widely contribute to the study of metaphor in education, i.e. discourse analysis, corpus-based analysis and experimental research.

2.1.3 Conceptual Metaphor Theory

Conceptual Metaphor Theory was first proposed in George Lakoff and Mark Johnson's (1980) publication *Metaphor We Live By*, followed by a number of theoretical books. The basic assumption of Conceptual Metaphor Theory argues that metaphor itself does not simply serve a stylistic function of a language, but is a manifestation of human cognition. A well-known formula of Conceptual Metaphor Theory: TIME IS MONEY can be used to explain briefly how abstract concepts are processed via conceptual metaphors. According to Lakoff, TIME is defined as a target domain, which represents an abstract concept; MONEY is considered as a source domain, which stands for a concrete concept. In order to understand the abstract concept of TIME a conceptual structure, namely cross-domain mappings or correspondences, is developed to help people use the concrete concept of MONEY to understand the abstract concept of TIME via *directly embodied* cognition (Lakoff & Johnson, 1980). Some metaphorical concepts involving TIME IS MONEY taken from Lakoff and Johnson are as follows:

- You are *wasting* my time.
- This gadget will *save* you hours.

Grady (1997) proposes Primary Metaphor Theory that aims to adjust some foundations of Conceptual Metaphor Theory in a way that maps structures onto target domains. Grady argues that the differences between source domains and target domains rely on gradation of subjectivity, rather than a clear-cut borderline. He also suggests that experiential cognition is a central part in human embodied cognition. The main criticism of Conceptual Metaphor Theory is a lack of contextualized examples for metaphor analysis as some corpus studies (Deignan, 2006; Cameron & Deignan, 2006; Musolff, 2000) suggest. Thus, the recent studies that contradicts the major claim made by Primary Metaphor Theory are found in the observations from social psychology research (Casasanto, 2014; Landau *et al*, 2014b). The experiences of target domain may influence the interpretation of the source domain in terms of non-linguistic cognition. This result raises an awareness of the important role of both cognition and social communication played in the analysis of metaphor of different level such as primary metaphor and complex metaphor (also termed analogical metaphor). Combining cognition-oriented and discourse-oriented studies, a dynamic multidimensional socio-cognitive model of metaphor (e.g. Gibbs, 2013; Semino *et al*, 2013) is proposed. This new model of metaphor research (Hampe, 2017) aims to provide a more comprehensive perspective from the angle of studying metaphor integrating the consideration of communication; it involves the insights into human body components (e.g. gesture and cognition), the interactions between human mind and the

(man-made or natural) physical world, and last but not least social communication contexts.

The following sections turn to the focus on specific role of three notions of the cognitive linguistic theories, that is, image schemas, categorisation and frame semantics to review their theoretical framework, their relationship with meaning construction and finally their application in EFL.

2.2 Image Schemas

This section outlines several important roles of image schemas played in the study: (1) how image schematic theory can help account for the similar and unique patterns of meaning construction on particles in phrasal verbs between English and Mandarin Chinese, (2) what facilitation image schemas can provide for improving meaning construction on particles in phrasal verbs; (3) what the recent development of image schemas can contribute to the acquisition of particles in phrasal verbs.

2.2.1 The Theory of Image Schemas

From the cognitive semantic viewpoint (Langacker, 1987), language is regarded as a combination of a form and a meaning, and this is based on two structures: conceptual structure (Johnson, 1987) and semantic structure (Talmy, 2000). Conceptual structure is an internal system, which takes responsibility for processing the input of a form. Embodied cognition is part of a conceptual structure, where the theory of image schemas rests. The term 'image' from 'image schemas' has restricted usage in psychology, mainly focusing on imagistic experience and sensory experience. However, in Cognitive Linguistics it embraces a broader context, covering all categories of sensory-perceptual experience. According to Johnson (1987: xiv, xvi), an image schema is 'a recurring dynamic pattern of our perceptual interactions and motor programs that gives coherence and structure to our experience. ... "Experience" ... is to be understood in a very rich, broad sense as including basic perceptual, motor-program, emotional, historical, social and linguistic dimensions.' Johnson (1987) uses the expressions of 'in' and 'out' to describe our daily routines from the start of the day, in terms of the schematic concept CONTAINER. Johnson's description reveals multiple concepts of CONTAINER, from concrete concepts such as a mouth and a bathroom, to abstract concepts like physical states or emotional states. The CONTAINER schema is derived from our everyday sensory experience and embodied experience, which means it is pre-conceptual originally. However, image schemas are not like mental images that people can conjure up in their mind by means of visual images with rich details. In contrast, image schemas are abstract but people can be

consciously aware of the existence of image schemas. For example, in Johnson's description, the particles 'in', 'into', 'out', 'out of' can be found all categorised under a specific lexical concept, relating to a container concept that is to be presented in a specific form. This useful aspect of image schemas can be applied to understanding the complexity of particles in a more systematic and economical manner in this study.

Conversely, semantic structure is an external system, coded in a form and consisting of a meaning. Embodied experience gives rise to image schemas, abstract representations of people's daily activities when interacting with the physical world around them. The embodied experience underpins conceptual structure, reflected in a form of language. Talmy (2000) argues that semantic structure involves two subcategories: conceptual structuring system and conceptual content system. The former system comprises schematic information within a particular scenario; the latter system, which the former system is built upon, is copious in detail. Based on this claim, the semantic structure can also be categorised into two sub-systems: (1) the open-class semantic system (e.g. nouns like *pen*, *chair*, verbs like *play*, *write*, and adjectives like *pretty*, *ugly*) and (2) the closed-class semantic system (e.g. fixed expressions like *a piece of cake*, syntactic relations like *subjects* or *objects*, word class like the category of *preposition* and so forth). From these examples, the differences between the open-class semantic system and the closed-class semantic system can be observed that the open-class system has rich meaning content, but the closed-class system is limited in the structural content. It can be argued that prepositions are categorised in the closed-class system but they represent rich meaning content. Given this viewpoint, an issue can be raised that it may be easy for L2 learners to acquire the grammatical patterns of using prepositions but understanding all the semantic value of prepositions would be another challenge.

Semantic information may be conceptualised in different perspectives. The process of this type of information is known as 'construal' (Dirven *et al*, 2004; Langacker, 2008). There are several reasons for explaining this type of process, consisting of specificity, focusing, prominence, perspective and a vantage point. A renowned example to illustrate the aspect of focusing is the scenario of a half-filled glass of water. It can be interpreted either as a half-empty glass of water, or a half-full glass of water. The account of construal of semantic information may help explain the similarities and differences of meaning construction on particles in phrasal verbs shared between native English speakers and Mandarin Chinese-speaking English learners in this study.

2.2.2 Meaning Construction in Image Schemas

One of the major claims proposed by Lakoff and Johnson (1980) is that abstract concepts are conceptualised by embodiment cognition. Conceptual Metaphor Theory is developed upon the basis of associating concrete concepts with abstract concepts by conceptual mappings. This theory explains a key process for meaning construction. The crucial role of image schemas lies in providing a concrete basis for metaphorical projection. For example, image schematic theory has implications for conceptualising abstract thoughts of time or emotion. Littlemore (2009: 97) illustrated three phrasal verbs with temporal meanings, all originating from spatial-based meaning extensions, *look back*, *take this forward* and *move on*. She argues that *look*, *take* and *move* are motion verbs that will be interpreted based on their abstract concepts. The three particles: *back*, *forward* and *on* are conceptualised as spatial particles, yet they are used as temporal meanings. Despite the temporal meaning extension, image schemas can be applied to describe more abstract thoughts of human emotions through the concept of CONTAINER, viewing the human body as a container filled with heat that stands for anger; for example, the sentence: 'He is going to *explode*.' can be used to express that someone is furious. From the above perspective, the concept of image schemas can be a useful tool for L2 teachers and learners to construct meanings on spatial senses, temporal senses and metaphorical senses of particles in phrasal verbs.

Cognitive linguists agree that the image schematic theory is one of the key notions for studying semantic changes. Some scholars (Rhee, 2002; Smith, 1999; Verspoor, 1995) propose that the process of semantic change involves image schemas. Rhee (2002) suggested four processes: metaphor, generalisation, subjection and frame-to-focus variation, emerging from semantic changes by examining the English particle 'against'. He found that the meaning of 'against' has metaphorically transferred from a physical to a temporal concept.

Overall, from studies of embodied cognition and semantic change in conjunction with image schemas, both suggest that the image schematic theory can be useful in helping foreign language learners acquire the metaphorical meanings of English particles since one of the main purposes of this study is to explore three types of meaning, *space*, *time* and *metaphor*, of particles in phrasal verbs.

2.2.3 Image Schemas, Particles and EFL

Image schemas and container metaphors can be useful for facilitating research on the acquisition of particles in relation to phrasal verbs in the context of EFL. Kawakami (1996)

found that repeatedly putting objects in and out of a box could help promote young children's cognitive development of the prototypical senses of 'in' and 'out'. Based on this recurring pattern of spatial sense in life experience, children gradually develop extended concepts emerging from the physical meanings used in various domains. For example, in the sentence 'He is *in* trouble.', the concept of trouble is viewed in the abstract sense of a container. Someone who is inside the trouble means he or she is trapped in the trouble, metaphorically. These findings in the study of first language acquisition suggested that image schemata could help to explain the cognitive development of containment, and they have implications for second language acquisition via the same cognitive tool.

Littlemore and Low (2006: 161) argue that image schemas exhibit two features: one is a simple state of 'containment, but which appears to underlie behaviour, belief, or linguistic expressions'; the other is 'held to be psychological real, to some extent "imageable", and developed by individuals as a result of ongoing bodily experiences.' These two aspects of image schemas have been extensively applied to research on second language teaching and learning, such as Holme (2004, 2009), Mahpeykar (2008) and Rudzka-Ostyn (2003). Holme (2004) has designed a set of six worksheets and uses them to teach phrasal verbs in relation to 'up'. Based on the meaning shift or semantic change of 'up' from physical senses to abstract senses via metaphor mappings, he classifies these worksheets into six topics in a progressive manner as shown below:

- Worksheet 1: Up is dynamic (e.g. come up, get up, put up...)
- Worksheet 2: Up is achieved movement (e.g. hold up, put up...)
- Worksheet 3: Up is an increase, more can be good, up is good; an increase is sometimes bad (e.g. go up, speed up, grow up, add up, turn up the volume, live it up...)
- Worksheet 4: The end point is up (e.g. fill up, catch up, make up, split up...)
- Worksheet 5: Up is an end point (e.g. slow up, give up...)
- Worksheet 6: Up is bringing lost subjects to the surface (e.g. look up information, phone her up, dream up a wild idea, crops come up...)

For each worksheet, he provides visual images in relation to various phrasal verbs with 'up'. He argues (2004: 166) that '...prepositions and particles do not represent a random method of constructing meaning in English, where every instance must be treated as separate from every other. They can be grouped according to metaphorical theme and can be learnt as evolving from that common schema.' Although Holme aims to develop his worksheets in a progressive manner, in terms of covering the physical and abstract senses of 'up' with six themed worksheets, there is still the lack of a clear explanation of how the target particle 'up' develops its semantic network. I would argue that the

development of word meanings can be classified in a more systematic fashion, for example from the spatial senses to the temporal and metaphorical senses. It is claimed that L2 learners will benefit more from clear categories of word meanings.

Offering a contrast to traditional approaches, Rudzka-Ostyn's textbook (2003) *Word Power: Phrasal Verbs and Compounds – A Cognitive Approach* is one of the more influential publications adopting image schemas and semantic categorisation, illustrating how to teach and learn particles relating to phrasal verbs. It can be argued that visual images exert a positive effect on L2 learners' better acquisition of particles in phrasal verbs. However, there has been little research on the facilitation that Rudzka-Ostyn's approach can provide in terms of teaching and learning particles in phrasal verbs, using a set of meaning categories. Based on the semantic categorisation presented in Rudzka-Ostyn's textbook, Mahpeykar (2008) uses corpus data to analyse the usage of particles by L1 speakers and L2 speakers respectively. She found that distinctive uses of phrasal verbs exist between L1 and L2 speakers: L2 speakers tend to focus more on central or prototypical meanings than on peripheral or metaphorical meanings. Given these findings, it can be concluded that the conceptualisation of metaphorical meanings of particles in phrasal verbs is a challenging issue for L2 learners. The theory of image schemas entails the use of visual images or drawings that may help language learners to grasp the central meanings first, and gradually to develop their metaphorical knowledge of word meanings. Language learners can take advantage of using this progressive manner to develop their linguistic knowledge in a more systematic way.

2.3 Categorisation

The theory of categorisation accounts for knowledge representation and linguistic meaning. Modern theories of categorisation cover three main sub-theories: prototype theory, Idealised Cognitive Models, and radial categories. Categorisation has been applied extensively to teaching and learning particles. The purpose of this section is to review the literature on the theories of categorisation. It begins with a brief overview of the development of categorisation theories; it then goes on to discuss the relationship between categorisation and meaning construction. What follows is an account of the application of categorisation to teaching and learning particles in the EFL context.

2.3.1 The Theory of Categorisation

The traditional view of categorisation is termed the 'classical theory' of categorisation, and this classical model has been built upon since the time of Aristotle. The model has a *definitional structure* that links concepts and language; this structure sets *necessary and*

sufficient conditions for each member of a category. Taking an example such as BACHELOR to explain these conditions: BACHELOR involves a set of conditions: 'a male', 'an adult', and 'being unmarried'. Each of these conditions is necessary, yet none of the conditions can be separated from the whole set; meaning that if the conditions only cover 'an adult' and 'unmarried', the meaning of the lexical item can be equal to SPINSTER (Evans & Green, 2006). From the dictionary perspective, the central meaning of BACHELOR derives its definition from the above three conditions. However, the encyclopaedic knowledge around the item BACHELOR is missing, which suggests that the dictionary view fails to consider pragmatic factors in the lexical item. When it comes to the acquisition of particles and phrasal verbs, the weakness of the dictionary view will also cause failure in the second language acquisition. Some observations and survey of textbooks used for teaching and learning English particles during my prior teaching experience in Taiwan reveal that it is common to see English particles and phrasal verbs introduced in textbooks, using a list of dictionary definitions arranged in alphabetical order. Students are encouraged to adopt only rote memorisation to learn the semantic complexity of particles and phrasal verbs, due to the lack of a more facilitating teaching and learning method. Evans & Green (2006) similarly argue that the dictionary view is problematic. They suggest that the traditional view of categorisation fails to consider carefully the conceptual fuzziness, the boundaries of a category, and the central membership of a category. However, these limitations inspired cognitive psychologist Eleanor Rosch and her colleagues to develop the prototype theory, while conducting a series of experiments and collecting more empirical data to examine how categories are formed in the human mind.

Rosch's prototype theory (1975, 1977, 1978; Rosch *et al*, 1976) acts as an intermediary between the classical theory of categorisation and Lakoff's (1987) cognitive model of categorisation, because her experimental research justifies some viewpoints in the classical theory of categorisation and exerts influence on Lakoff's theory of categorisation. The details of Lakoff's ICMs is discussed below. Prototype theory has two dimensions: one is vertical dimension, named the principle of cognitive economy; the other is horizontal dimension, termed the principle of perceived world structure. Cognitive linguistics represents a principle to cluster similar objects, stimulus, or experience in order to save time and energy for understanding the world. In Rosch's experimental study, she found that there is a hierarchical system in human mental categorisation, comprising three levels from top to bottom: (1) superordinate level, (2) basic level and (3) subordinate level. For example, in her basic-level category research of 1976, FURNITURE is classified as a superordinate level; CHAIR is at the basic level; KITCHEN CHAIR is placed at the subordinate level. The most important finding in her study relates to the attributes of the basic level which exhibits the most fundamental information level in human categorisation,

representing a feature of perceptual salience. For instance, when requesting a visual image of CHAIR, subjects immediately press the 'match' key in a picture verification task. This suggests that objects in the basic-level category will be recognised more quickly than those from the superordinate or subordinate categories. There is also some evidence supporting this premise that has emerged from children's language acquisition. Basic-level terms in children's language present some features: they usually involve single-word units, and they are used more frequently than the other two categories. These features can thereby facilitate research on first language acquisition, as they can be seen in numerous L1 books for young children, as well as to facilitate L2 teaching and learning. When it comes to frequent usage of basic-level terms, a question of 'universality' arises from the basic-level category. Rosch *et al* (1976) argue that environmental factors: cross-linguistic aspects, cross-cultural variations and even specialist knowledge within a single speech community, limit people in their categorisation.

The second dimension of prototype theory involves the horizontal dimension concerning the principle of perceived world structure. Rosch (1976) designed a series of linguistic experiments without visual images to obtain data from 'goodness-of-example rating', aiming to examine the prototypical theory in terms of finding the best example from the same category. The category BIRD is a well-known example of this rating. The findings show that at the category of BIRD, ROBIN is a central member of the category; OSTRICH belongs to the peripheral members; BAT is rated at the extreme edge of the category. Although 'birds' are classified into different members at the category of BIRD they still share some of the same attributes, in terms of a degree of family resemblance. It has been assumed that the connections of family resemblance reveal a distinct perspective of categorisation from the traditional view, namely a set of necessary and sufficient conditions in a definitional structure.

Rosch's prototype theory establishes a framework of knowledge representation in the human mind. However, her empirical findings only reveal the superficial structure of human categorisation, because her data was collected simply from the subjects' decisions about categorisation. The recent development of Rosch's study is that Taylor (2003) introduces Rosch's theory and extend her findings to identify more linguistic issues that were first addressed by Lakoff's (1987) ICMS. However, Taylor (2017) further argues that constructing meanings is a complicated process. Various factors, such as syntactic, semantic, pragmatic and discourse values all need to be taken into consideration.

Some scholars (Lakoff, 1987; Laurence & Margolis, 1999) suggest that the prototype theory would have been more convincing if the complex system of human categorisation had been investigated in more detail. Given these points, Lakoff has developed Idealised

Cognitive Models (ICMs) with more sophisticated functions to elaborate the sophisticated system of human categorisation. Essentially, the choice of the term 'Idealised Cognitive Models' exhibits the claims of the theory. In other words, 'idealised' stands for abstract concepts that can be applied to a wide range of domains; 'cognitive' means that concepts exist in the human mind, and 'models' demonstrate that categorisations are mental representations. Lakoff's ICMs, underpinned by Gestalt psychology, are developed into experiential linguistics; however his concepts are not exactly the same as Gestalt psychologists' claims, when he sets out his arguments in the book *Women, Fire and Dangerous Things* (1987). It is assumed that the theory of ICMs is used as a cognitive tool to acquire the background knowledge for semantic analysis. In terms of background knowledge, the theory of ICMs is partly associated with Fillmore's frames. They both encompass the intricate system of human knowledge, yet Lakoff argues that ICMs would provide copious details covering a wider range of abstract experiences than Fillmore's specific examples in a given EVENT.

In order to elaborate the richness of ICMs, Lakoff proposes the sources of the typicality effects and the structure of ICMs to support his own argument. There are three types of typicality effects: (1) mismatches of ICMs, (2) cluster models of ICMs, and (3) metonymic ICMs. With regard to the typicality effects, Lakoff takes POPE as a poor example of BACHELOR to show the mismatch of ICMs. In order to grasp the concept, POPE will be built upon the category of CATHOLIC CHURCH rather than the category of BACHELOR, because POPE is a non-central or not prototypical member in the category of BACHELOR, in terms of being 'an unmarried male'. In other words, the typicality effect of POPE relies on CATHOLIC CHURCH, rather than BACHELOR. The mismatch of ICMs leads to L2 learners' confusion in meaning construction.

The second source of typicality effect arises from the example of MOTHER. Lakoff argues that most dictionaries adopt the BIRTH MODEL as a primary definition of MOTHER, however, he found two exceptions in defining MOTHER respectively, as NURTURANCE MODEL found in Funk and Wagnall's *Standard Dictionary* and as GENEALOGICAL MODEL found in *American College Dictionary*. The typicality effect of cluster models implies that L2 learners should be more aware of the inadequacies in dictionary definitions of a given word, and this corresponds to cognitive linguists' rejection of the dictionary view, in terms of a set of necessary and sufficient conditions.

Metonymic ICMs is the third typicality effect that Lakoff proposes. Metonymic ICMs give rise to several typicality effects: social stereotypes, typical examples, ideals, paragons, generator and salient examples. Metonymy means that one entity, as an exemplar, stands for the whole category (Lakoff & Johnson, 1980; Lakoff & Turner, 1989). Kövecses &

Radden further provide an in depth account of metonymy based on Lakoff & Johnson's metonymic ICMs, as they view metonymy as follows:

'Metonymy is a cognitive process in which one conceptual entity, the vehicle, provides mental access to another conceptual entity, the target, within the same domain, or ICM.' (Kövecses & Radden, 1998: 39)

Unlike Kövecses & Radden's theory of metonymy, some cognitive linguists (Barcelona, 2003c; Taylor, 2003) argue that the conceptual mechanism of metonymy is more basic than the conceptual system of metaphor, as Barcelona (2003c: 31) suggests that 'every metaphorical mapping presupposes a prior metonymic mapping.' He views that metonymy has a more experiential correlation than metaphor in terms of conceptualisation. The example can be referred to his explanation of *loud colour*. Barcelona (2003c) argues that understanding the metaphor: *loud colour* cannot be mapped from the source domain of SOUND. Instead, it has to be based on a SUBDOMAIN (DEVIANT SOUND) which he names, because there is a strong experiential correlation between loud sound and drawing attention. For this reason, *loud colour* has to be understood in terms of metaphorical conceptualising deviant colour as attracting attention. Other literature that compare and contrast conceptual metaphor and conceptual metonymy can be referred to Dirven & Pörings (2002). They provide in depth discussion regarding the interaction between metaphor and metonymy that is also argued by Croft (1993), Grady & Johnson (2000).

In order to give a full account of ICMs Lakoff presents a fourth type of typicality effect, a composite prototype, which combines the cluster model of MOTHER with a metonymic model of HOUSE-WIFE-MOTHER. In a composite prototype, the prototype is located in the centre and other subcategories are extended from the centre; therefore, it creates a radial network for a category. In the fourth source of typicality effects, Lakoff combines cluster models of MOTHER with the metonymic model of HOUSE-WIFE MOTHER to form a radiating lattice structure for the category of MOTHER, as radial categories. The prototypical model of MOTHER is placed in the centre, together with subcategories of MOTHER around the centre, and the model presents a radiating layout to show the relationships among category members. This can be seen in Figure 2.1.

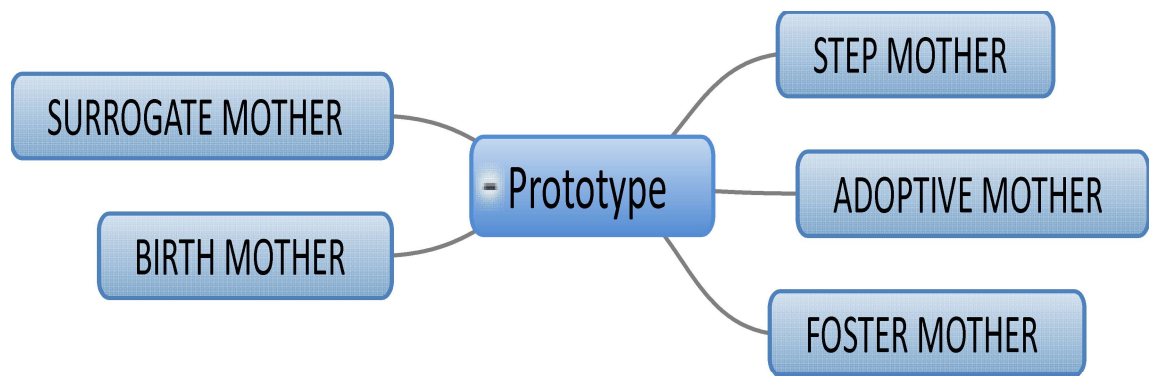


Figure 2.1 Radial categories for 'MOTHER' (adapted from Evans & Green 2006: 276)

The important finding of Lakoff's radial categories shows that subcategories are extensions from the central member, and that they are motivated from culture. In other words, subcategories do not result from the prototypical or the central models of the category; alternatively, they emerge from human cultural experiences.

In order to conduct a fine-grained research, Lakoff (1987) collaborated with Brugman (1981; Brugman & Lakoff, 1988) to make a case study of the preposition 'over'. This case study presents a complex structure together with a large number of distinct subcategories of word meanings that are stored in a mental lexicon. However, Lakoff and Brugman's case study fails to take the contextual factor into account (Cruse, 1986, 2000, 2002; Croft & Cruse, 2004). Although Lakoff's theory of radial categories has a number of limitations, it has continued to exert a great effect on subsequent studies of prepositions. From a cognitive semantic perspective (Lakoff, 1987; Taylor, 2002), the structure of radial categories entails that the concrete and prototypical (best example) meaning lies in the centre of a given category; the abstract and metaphorical meaning being presented outwardly. Based on corpus data, some studies (Deignan, 2005; Littlemore & MacArthur, 2007) of metaphorical meanings in relation to radial categories support this argument, that metaphorical meanings are likely to be classified as peripheral member of a category. The connections presented in radial categories have some implications for L2 teaching and learning. For example, language teachers can raise an L2 learner's awareness of the exceptions to rules while acquiring the metaphorical or metonymic meanings of English particles, often considered as a challenging task. Dirven & Verspoor (2004:35) develop a radial network of the senses of *school*, and then divide them into four separate types of extended meanings of *school*: METONYMY, SPECIALISATION, GENERALISATION and METAPHOR, as shown in Figure 2.2.

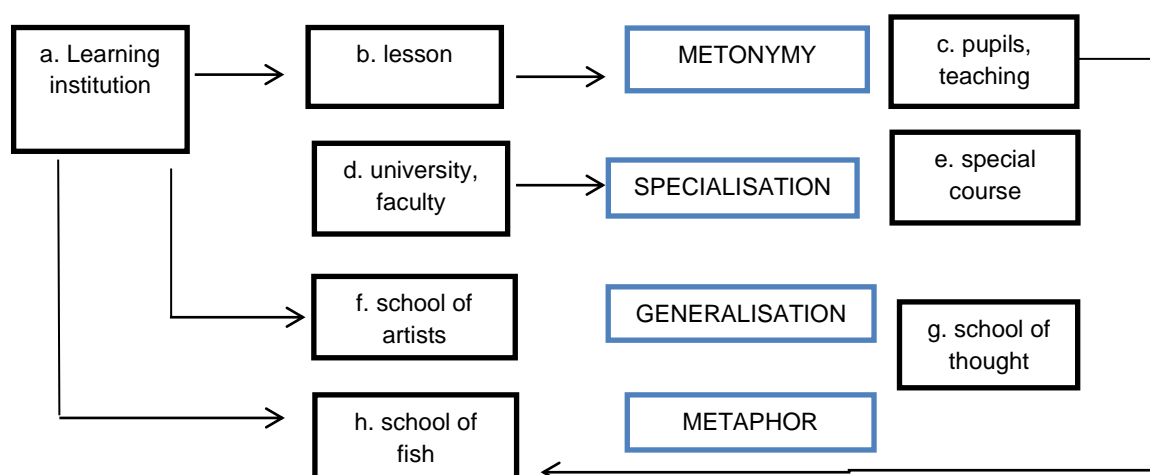


Figure 2.2 A radial network of meaning extension of school (adapted from Dirven & Verspoor 2004:35)

Theoretically, radial categories have been extensively applied to language pedagogy (Dirven & Verspoor, 2004; Holme, 2004, 2009; Littlemore, 2009); however, there is still a shortage of empirical data to show how effective radial categories can be in making a contribution to foreign language teaching and learning, and even less experimental evidence to illustrate how radial categories can facilitate teaching and learning English particles and phrasal verbs. In Chapter 3, the radial network of meaning extension concerning its implications for the design of worksheets employed in this study will be discussed further.

2.3.2 Meaning Construction in Categorisation

Categorisation is one of the very first construals that human beings adopt in order to understand the physics of the world around us. Categorisation that emerges from either direct experience or indirect experience meets people's needs to acquire the truth. The example of 'on-off' orientation comes directly from our interaction with the surface, the ground, and other horizontal surfaces. For instance, where 'on' represents the upright position; in English, a sentence may be: *There is a picture on the wall*, regardless of the vertical or horizontal manner of the wall. 'Off' entails an opposite concept: being away from the surface. Generally, the prototypical meaning of 'on' relies on 'contact with the surface'. On the other hand, Lakoff uses two expressions: 'in the woods' and 'out of the woods' to describe how to apply indirect experience to acquiring the metaphorical meaning. 'Woods' involve multiple meanings: basic senses and metaphorical senses. In the basic sense, woods are viewed as a solid container with boundaries, representing a human brain. In the metaphorical sense, woods have an extended meaning as a forest with many trees to represent the lack of clear and orderly thought. Therefore if people are

in the woods, it means that they do not have clear thoughts. Conversely if people are *out of the woods*, it means those people do have clear thoughts.

Lakoff's (1987) ICMs give some explanation about how a complex knowledge system is organised in the human mind. ICMs are divided into five subtypes and they are elaborated below:

- Propositional ICMs: Lakoff (1987: 285) uses the term 'proposition' referring to factual knowledge, in place of imaginative devices. For example, checking into a hotel involving a set of rules or procedures in our knowledge is one kind of propositional ICMs. A taxonomic system is another example of propositional ICMs, such as the educational system starting from primary school to tertiary education. Propositional ICMs can be used to explain mental lexicon for L2 learners, for instance predicting the relevant lexicons in L1 and L2 speakers might structure meanings based on those lexicons.
- Image schematic ICMs: Image schemas serve as the foundation to conceptualise the concept of SPACE. Concepts such as CONTAINER, SOURCE-PATH-GOAL, UP-DOWN, FRONT-BACK and so forth are regarded as the basic elements in the human conceptual system. In terms of the SPACE concept, Lakoff argues that the theory of image schemas plays a crucial role in conceptualising the meaning of English particles. Although image schemas are inextricably intertwined with ICMs, image schemas, as stated in Section 2.2, still hold unique positions facilitating foreign language teaching and learning.
- Metaphorical ICMs: Metaphorical mapping follows these steps: a concrete idea is defined as a source domain, an abstract idea is considered as a target domain, and a concrete idea from the source domain is used as a cognitive tool to project the meaning of a target domain. In this thesis metaphor is a crucial concept, acting as a connecting thread from the beginning to the end, as one of the research aims in this study is an attempt to explore how Mandarin Chinese-speaking English learners overcome the challenging hurdle of grasping the metaphorical meanings of particles in phrasal verbs.
- Metonymic ICMs: Metonymy is used as a reference to interpret the whole category. Metonymic ICMs give rise to several typicality effects: social stereotypes, typical examples, ideals, paragons, generator and salient examples. All the typicality effects of metonymy indicate that people's judgements of a category member are based on cultural norms or expectations. Cross-cultural factors help explain why metonymies cause L2 learners' miscomprehension and miscommunication.
- Symbolic ICMs: This type of ICM is related to Fillmore's frame semantics. Scholars in frame semantics argue that the interpretation of a single lexical item is unlikely

to take place without referring to other, relevant lexical items. In order to make a distinction from Fillmore's ideas Lakoff adopts the notion of 'symbol', referring to the same concept in frame semantics. According to Fillmore, semantic frames play significant roles in conceptualising lexical items, particularly verbs, which distinguish themselves from the focus of the theories of categorisation. Studies of frame semantics have not dealt with particles very much; therefore it is worth noting that an investigation into particles in phrasal verbs via the cognitive linguistic approach of frame semantics can make a contribution to EFL. There is more discussion of frame semantics in Section 2.4 below.

2.3.3 Categorisation, Particles and EFL

This section reviews some theories, such as Lindstromberg's prototypical semantics, Contrastive Analysis (CA), and Tyler and Evans's polysemy, which are in conjunction with the theories of categorisation in terms of teaching particles in the language classroom.

When it comes to prototypical semantics, Lindstromberg (1996), based on Brugman's (1981) and Lakoff's (1987) case study of the preposition 'over', applied prototypical semantics to analysing the preposition 'on'. He developed a systematic meaning construction upon 'on', that is, from concrete senses to metaphorical senses. The examples are shown below (1996: 228):

- The pencil is *on* the book. (concrete meaning of 'contact')
- The man is sitting *on* the chair. (concrete meaning of 'support')
- I spoke to her *on* the phone. (metaphorical meaning of 'mental contact')
- You can rely *on* me. (metaphorical meaning of 'mental support')

In his 1998's publication, Lindstromberg provided more explanations of how various prepositions entail metaphorical meanings. His study has exerted a significant impact on subsequent semantic prototype research with prepositions.

In the case of Contrastive Analysis (CA), a study (Wardhaugh, 1970) that is intended to analyse the differences and similarities between two languages or cultures, could shed new light on the theory of categorisation. The major claim of CA concerns how first language learning can affect second language acquisition. The application of CA could improve the study of foreign language teaching and learning. Elston-Guttler & Williams (2008) suggest that L1 categorisation systems can have an effect on a learner's sensitivity and development in an L2, because their findings indicate that L1 learning habits become

deeply entrenched in the human mind; and they are not easily adjusted when acquiring a different language structure of categorisation.

Wang (2014) conducted a comprehensive research into three confusing prepositions, *in*, *on* and *at*, learned by Mandarin Chinese-speaking students in Taiwan. He examined carefully how language transfer affects the acquisition of English prepositions in the EFL context, in the use of Contrastive Analysis. His findings showed that there are differences and similarities between English and Mandarin Chinese prepositions. Raising L2 learners' awareness of the conceptual categorisation of prepositions could improve foreign language teaching and the learning of English prepositions. However, his research mainly focused on comparing and contrasting the two languages; further research could investigate how EFL learners can benefit from cognitive linguistic approaches in the field of language acquisition.

From the perspective of cognitive semantics, Tyler & Evans (2003) provide a new angle, presenting the trajectory (TR)-landmark (LM) configuration to examine how prepositions can be used to develop a semantic network extending from spatial to abstract senses. Their Principled Polysemy approach sets out to attain two research goals: one is to mark the dividing line between polysemous and vague meanings, and the other is to set up criteria that can be used to judge the prototypical meaning in a given radial category. Crucially, Tyler and Evans claim that the concrete meanings of prepositions are motivated by human embodied experience. Their approach is particularly useful in studying the prototypical meaning, that is, the spatial sense of prepositions.

2.4 Frame Semantics

This section is divided into three parts. The first discusses the theoretical development of frame semantics. Frame semantics builds a link between the structure of encyclopaedic knowledge and word meanings, as developed by the cognitive linguist Charles Fillmore (1975, 1977, 1982, 1985a; Fillmore & Atkins, 1992). As part of Cognitive Linguistics, frame semantics interacts with other strands, such as Lakoff's theories, and Cognitive Grammar (Langacker, 1987), which will also be reviewed. The second part moves on to describe the relationship between frame semantics and meaning construction. Finally the application of frame semantics is presented.

2.4.1 The Theory of Frame Semantics

Frame semantics represents an encyclopaedic view of word meaning. In general, the theory of frame semantics focuses on examining the usage of verbs and it has rarely been

applied to analysing the field of meaning construction on particles in conjunction with phrasal verbs. Thus, it gives a new angle to explore phrasal verbs by raising L2 learners' awareness of particles in verb frames to facilitate their understanding of phrasal verbs.

A 'frame' refers to a knowledge structure stored in our long-term memory and is represented as a human concept. The notion of 'frame' was first conceived by the cognitive psychologist Bartlett (1932) in *The Theory of Schemata*, which proposes a conventional model of knowledge structures, termed 'frames'. Fillmore's (1985a) frames derive from Gestalt psychology, and he borrows the terms 'figure' and 'ground'. A 'figure' refers to a lexical unit, exhibiting a particular meaning; on the other hand, a 'ground' serves as a larger frame to fulfil a purpose of understanding. Fillmore's (1976) Interactional frames emerge from 1970's theories of pragmatics and speech act, and further develop into a theoretical base of frame semantics combining cognitive frames with genre types. Interactional frames provide a description of processing language to serve the purpose of understanding. Fillmore argues that understanding starts with an interaction between a person's experience and the environment. Thus, context and perception play a key role in the process of understanding. People's early experiences are stored in their semantic memory, which is equal to the notion of 'frame' or 'schema' taken from psychology or artificial intelligence. The second stage of understanding is human perception of the context, which leads to the final stage of understanding the meanings of words.

To sum up, Fillmore claims that perception of context in the human mind represents a complex system which mainly involves three types of knowledge: context, prototype, and frame or schema. Interactional frames briefly reveal how semantic frames are employed in spoken or written communication. In other words, frame semantics mainly claims that a word in itself does not contain any meaning whatsoever, whereas a conceptual system of encyclopaedic knowledge provides a portal for people to gain access to a meaning. Additionally, frame semantics is also regarded as having a strong link with semantics and syntax in terms of understanding. Following these two strands of semantic frames, concerning the semantic perspective (Semantic Perspective) and the syntactic perspective (Cognitive Grammar) are reviewed.

Fillmore and Lakoff built on Rosch's prototype theory to develop their own distinct theories. Fillmore referred to a 'frame' as a 'background prototype'; Lakoff (1987) developed the prototype theory into ICMs, as mentioned previously. By exploring the concept of 'background prototype', Fillmore offers a clear description comparing *scene* and *construct* (1986:223), whereas Lakoff (1982, 1987) develops his own cognitive models and expands ICMs into five basic categories. When it comes to the differences between these two

theories, Fillmore's perspective on semantic analysis of English word 'bachelor' is rather different from Lakoff's. Katz and Postal (1964) suggest that 'bachelor' has the following semantic attributes: HUMAN, MALE, ADULT and NEVER MARRIED. Fillmore's analysis of 'bachelor', based on the necessary and sufficient conditions with the social expectations and requirements of a marriage, claims that Pope John II is not an appropriate case to be interpreted as a 'bachelor', because he observes that 'male participants in modern long-term unmarried couplings would not ordinarily be described as bachelors' (Fillmore: 1982b: 34). However, Lakoff argues that to some extent 'bachelor' could be considered as 'single' in the context of LGBT communities or religious organisations, because certain aspects of the real world have not been taken into account. The above examples reveal that Fillmore and Lakoff embrace diverse viewpoints towards experiential gestalt; however, Lakoff's ICMs is in part inspired by Fillmore's frames. In propositional ICMs, Lakoff claims that the scenario 'going to the restaurant' shows a sequence of EVENT from the starting point via the intermediate course to the end point, and this scenario responds to Fillmore's ideas that suggest how frames have exerted an influence on Lakoff's theories.

Cognitive Grammar is a cognitive linguistic model developed by Ronald Langacker (1987) who defines grammar in a broader sense, consisting of sounds, meanings, grammatical rules and pragmatic contexts. Langacker uses the notion 'symbolic assemblies' to bond the above linguistic phenomena. He claims that 'symbolic assemblies' emerge from two type of cognitive process, abstraction and schematisation. Abstraction refers to a process of generalising frequent language patterns. For instance, people learn a word's meaning by means of frequently encountering its combination of sounds, sentences, and utterances. Schematisation is a certain form given rise from abstraction, and represents a focused point shared by interlocutors. A focused point corresponds to Fillmore's notion of 'context' that exhibits shared background information. It is argued that both frame semantics and Cognitive Grammar are a rejection of Chomsky's theoretical framework that fails to describe the external factors in language knowledge. Consider the following sentence, where we focus meaning construction on the particle 'in': *Let's bring him in.* Cognitive Grammar argues that understanding this sentence involves two types of meaning process, namely *coded meaning* and *pragmatic meaning*. Coded meaning represents the prototypical meaning, viewing the particle 'in' as inside a container. However, coded meaning is insufficient for the interlocutors to grasp the real meaning of this sentence which could be used in various contexts, such as in a manager's office, in a courtroom or in a head teacher's office. Pragmatic meaning would provide more contextual cues for interlocutors to interpret what the sentence is attempting to express. From this view, frames explain how the context provides information for interlocutors to understand the pragmatic meaning.

2.4.2 Meaning Construction in Frame Semantics

When it comes to the relationship between frame semantics and meaning construction, the view of understanding a word held by frame semantics lies in there being a connection between a given word and its background information or encyclopaedic knowledge. Since a frame refers to encyclopaedic knowledge concerning people's experience of networking with the environment, such as social experience and physical experience, it is important to explore encyclopaedic knowledge to examine how it can facilitate meaning construction. To begin with, understanding words or categories rely on understanding their frames. Fillmore (1977:71) uses three contrastive examples: *tall* vs. *short* (HUMAN BEING frame), *high* vs. *low* (BRANCH OF A TREE frame) and *tall* vs. *low* (BUILDING frame) to highlight that frames are semantic bases for understanding. Although all three examples are adopted to describe the HEIGHT frame, each of the examples still conveys slightly different meanings in different frames, demonstrating that a frame provides the target users with useful references. An awareness of this is particularly crucial for L2 learners while processing phrasal verbs with metaphorically extended meanings. When it comes to understanding meanings, not only lexical units but also grammatical structures play a key role in meaning construction. Fillmore (1982) observes how the use of active voice and the use of passive voice in a sentence construction can cause distinct effects. Active voice structures focus on the aspect of AGENT, whereas passive voice structures pinpoint the facet of PATIENT. The semantic frames have intertwined with semantics as well as syntax. Finally semantic frames highlight the importance of the context, in contrast to the dictionary view. According to the dictionary view, a word can be understood with or without a contextual clue; however, frame semantics stresses that understanding always involves frames. From the perspective of frame semantics, understanding is based on the fundamental principle of semantic frames, meaning that L2 learners should raise their awareness of various contextual cues.

A recent development of frame semantics regarding the process of understanding can be referred to in Croft & Cruse's (2004:8-14) model of semantics for understanding built upon there being a link between metaphors and semantic frames. This model is adapted from Fillmore's (1982a:112) view to demonstrate the process of understanding. They use the model to illustrate a process of understanding or communication between a speaker and a hearer that 'the full, rich understanding that a speaker intends to convey in a text and that a hearer constructs for that text' (Croft & Cruse, 2004: 8-14). Their model is shown in Figure 2.3:

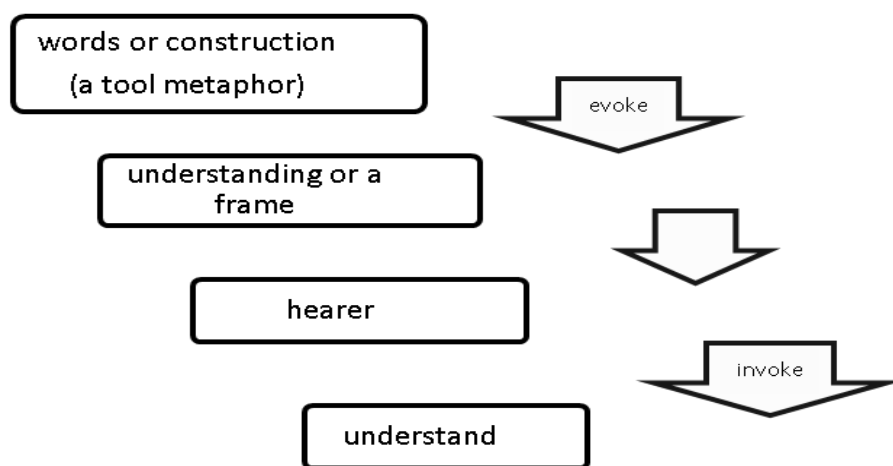


Figure 2.3 Croft and Cruse's model of semantics for understanding (adapted from Croft & Cruse, 2004)

2.4.3 Frame Semantics, Particles and EFL

Frames can facilitate bilingual communication to focus on cross-linguistic or cross-cultural knowledge. For example, in order to understand a popular Taiwanese street food 'stinky tofu' or the Western dairy product 'blue cheese', it is not enough to provide dictionary definitions against understanding. Frames with reference to the encyclopaedic knowledge of food culture can play a key role in dealing with cross-linguistic and cross-cultural variations. So, what are the implications of frames for foreign language pedagogy? Wierzbicka (1997, 2006) proposes that 'cultural script' should be used in foreign language teaching. The notion 'script' is another term relating to a frame. It was proposed by Schank & Abelson (1977) and they refer it to a sequence of events, such as 'going to a restaurant'. Based on the above suggestion, not only cultural-specific factors but also background knowledge of a specific frame shall be taken into account in this study, since the participants recruited for this study have been targeted as Mandarin Chinese-speaking learners of English with reference to their particular linguistic and cultural background.

Despite the above, little progress has been made in applying the theory of frame semantics to teaching particles in the EFL context. In the previous Section 2.2.3, I have provided some Holme's (2004) examples addressing the design of worksheets based on the cognitive linguistic approach. Holme (2009: 124-125) has also designed a classroom activity based on semantic frames to teach the English prepositions 'over' and 'through'. Firstly, he sets out to use body language to strengthen meaning construction on 'over' by performing the action of 'extending the arm and arching it up'; in contrast, 'through' enacted as 'the hand pushing forward with great effort, or the finger prodding its way

through an imaginary obstruction'. Next, he uses cloze tests with a binary choice of 'over' and 'through' to raise students' awareness of distinguishing the meanings between these two prepositions. He adds explanations for ambiguous sentences by indicating their individual frames. For example, one of the sentences in his cloze test: '*They worked _____ the problem in detail (looked at it closely and effortfully to solve it.)*' aims to help L2 learners clarify their confusion over these similar English prepositions. However, Holme has failed to cover a wider range of uses of prepositions in terms of semantic frames and cross-cultural variations in any systematic manner. It is argued that EFL teachers should raise their learners' awareness of various, diverse frames to help them grasp the meanings used in different contexts.

Having discussed Holme's application of frame semantics to EFL, I will move on to review the application of the FrameNet project to foreign language teaching and learning. Based on his research into semantic frames, Fillmore has collaborated with other colleagues (Fillmore, 1976, 1977, 1982a, 1985a; Fillmore & Atkins, 1992; Fillmore & Baker, 2001, 2010) to develop the FrameNet project (<https://framenet.icsi.berkeley.edu/fndrupal/>) at the International Computer Science Institute in Berkeley. The ongoing FrameNet project is an online dictionary and thesaurus which contains three main parts: (1) lexical entries for distinct word meanings, (2) a detailed account of frames and frame elements, and (3) a manually annotated corpus. An example of using the phrasal verb 'come across' has been tested by the researcher and its results are shown in Table 2.1.

Table 2.1 An abridged version of the searching example of 'come across' from FrameNet

Lexical entry	come (across).v										
Frame	Becoming_aware										
Definition	FN: encounter a new phenomenon										
Frame Elements and Their Syntactic Realizations	<p>The Frame Elements for this word sense are (with realizations):</p> <table border="1"> <thead> <tr> <th>Frame Element</th><th>Number Annotated</th><th>Realization(s)</th></tr> </thead> <tbody> <tr> <td>Cognizer</td><td>(1)</td><td>NP.Ext (1)</td></tr> <tr> <td>Phenomenon</td><td>(1)</td><td>NP.Obj (1)</td></tr> </tbody> </table>		Frame Element	Number Annotated	Realization(s)	Cognizer	(1)	NP.Ext (1)	Phenomenon	(1)	NP.Obj (1)
Frame Element	Number Annotated	Realization(s)									
Cognizer	(1)	NP.Ext (1)									
Phenomenon	(1)	NP.Obj (1)									
Valence patterns	These frame elements occur in the following syntactic patterns:										

Number Annotated	Patterns	
<u>1</u> TOTAL	Cognizer	Phenomenon
(1)	NP Ext	NP Obj

Annotated sentence	They are very direct in their dealings with each other, as you might discover if you COME across a friendly conversation among a group of friends .
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In this example, 'come (across)' is shown as a lexical entry. 'Across' is put in a bracket because the verb plays a central role in searching FrameNet, rather than a particle or a phrasal verb. The semantic frame of 'come across' lies in the frame of 'Becoming_aware'. Next, if a user clicks on this frame the result will be a set of frame information, that is, the word senses, the syntactic patterns and the annotated sentences relating to 'come (across)'.

Current development of FrameNet project aims to create FrameNets for many other languages: Spanish, Chinese, Japanese, Portuguese, Italian and German (Baker, 2012). It is worth noting that little research has been done on applying the cognitive model of the FrameNet project to teaching and learning particles in phrasal verbs in the context of EFL.

2.5 Summary

This chapter reviews the pedagogical approaches (rote learning is commonly used) to teaching English phrasal verbs and these approaches do not seem to help EFL learners to associate forms and meanings as meanings of phrasal verbs are regarded as arbitrary rather than motivated. They would also lead L2 learners to avoid using phrasal verbs (considered as a type of learning difficulty) to some extent. Cognitive linguists claim that meanings can be motivated since human conceptualisation is triggered by experiential embodiment. Hence the writer suggests that the use of cognitive linguistic approaches to assisting EFL learners' meaning construction on phrasal verbs would be beneficial. Followed by pedagogical approaches and learners' difficulty, the historical account and the recent developments in Cognitive Linguistics, Conceptual Metaphor Theory as well as the theoretical underpinnings and practical application of the three cognitive linguistic

approaches, namely image schemas, categorisation, and frame semantics employed in this study are discussed.

The importance and originality of this study is that it explores a more facilitating role that each of the cognitive linguistic approaches proposed can play in the acquisition of particles in phrasal verbs. More crucially, the research aims to offer a deeper insight into similar and unique meaning construction on particles in phrasal verbs between English native speakers and Mandarin-speaking EFL learners; it is the area that has not been extensively explored in the EFL context. Due to practical constraints, this thesis cannot provide a comprehensive review of meaning construction on all particles in phrasal verbs; more research on this topic needs to be undertaken before the similarities and differences of meaning construction between two languages are more clearly understood. The next chapter moves on to describe and present the methods and methodology used in this investigation.

Chapter 3 Methodology

This chapter describes the research design and data collection methods used in this study in order to answer the research questions. Firstly, what are the learning difficulty experienced and learning strategies employed by Mandarin Chinese-speaking English learners seeking to construct meanings on particles in phrasal verbs, before the three cognitive linguistic approaches i.e. image schemas, categorisation, and frame semantics are given? Secondly, how can the three cognitive linguistic approaches employed in this study help these EFL learners better understand particles in conjunction with phrasal verbs while, and after, the cognitive linguistic approaches are introduced? The details of the two main research questions and the sub-questions are addressed below:

1. What are the learning difficulty faced and learning strategies used by Mandarin Chinese-speaking English learners while encountering English phrasal verbs?

2. In terms of the three cognitive linguistic approaches, i.e. image schemas, categorisation, and frame semantics adopted in this study, what are the benefits and limitations that each of the cognitive linguistic approaches has in a foreign language classroom, and what facilitating role can these cognitive linguistic approaches play in improving Mandarin Chinese EFL learners' meaning construction on particles in phrasal verbs?

- 2A. What are the similarities and differences of meanings of English particles in phrasal verbs constructed between native English speakers and Mandarin Chinese-speaking English learners, and how can meaning construction between English and Mandarin Chinese shed light on the improvement for the acquisition of phrasal verbs?

- 2B. How can the overall findings be used to address the strengths and weaknesses of each of the cognitive linguistic approaches employed in this study, and how can they be used to improve their future applications?

In order to answer the above research questions, the researcher collected two types of data: (1) qualitative data: a questionnaire, part of the test sections in a pre-test and a post-test, a set of video-recorded training sessions, a collection of recorded language output and an interview, and (2) quantitative data: a pre-test and a post-test. The qualitative-based approach was at the core of the research design, accompanied by secondary quantitative testing data gathered in parallel in order to corroborate each other. This research method is particularly useful in this PhD project because it helps the researcher

to investigate an intricate linguistic issue embedded within a cultural-specific context. Similarly, Sandelowski (2003) suggests that mixed-methods research is beneficial to providing a comprehensive picture of a complex issue. Additionally, this type of method may help the researcher achieve an objective of triangulation: that is, combining qualitative and quantitative data can help validate research results.

The researcher adopted 'case study' research for this thesis to obtain richer data. Researchers such as Duff (2008) suggest that 'case study' research can be used as a theoretical foundation to help researchers in a number of ways. Stake (1995: xi) defines a 'case study' as research activity of the 'particularity and complexity of a single case'. Moreover, it also has the feature of flexibility; that is, the advantages of using the case-study method include not only digging deeper into a particular case, but also extending a single case study to multiple case studies. In actual practice, the case-study method is not regarded as merely qualitative-based research. It can also be used as a mixed methods study. For example, Verschuren (2003) supplements the quantitative data from questionnaires with the use of case study. However, critics question the wider application of case-study research owing to one of the features of such studies, i.e. particularity. Dörnyei (2007) suggests that a series of carefully designed and conducted strategies using case sampling would offer more insight into a wider and broader area of relevance. While the many advantages of a case-study method have already been discussed, the method has another function: to help lay the foundations for systematic and deeper research in this study. As Punch (2005) points out, many research areas are still in a fragmented and incomplete state. The use of case studies is a well-established approach that has helped the researcher to account for the purposive sampling of the participants in this thesis.

3.1 Rationales for the Theoretical Approaches to be Applied to this Research

As reviewed in Chapter 2, the concepts of Lakoff and Johnson's Conceptual Metaphor Theory are central to cognitive linguistic studies. Conceptual Metaphor Theory proposes that it is vital for human beings to employ a concrete concept while attempting to understand an abstract idea. It has commonly been assumed that word meanings are represented in a spectrum, rather than defined within a clear-cut borderline. However, a systematic and explicit classification of word meanings that is underpinned by cognitive linguistic theories would be more useful for L2 learners of English to employ, when it comes to understanding particles in phrasal verbs. Accordingly, I divided the particles in phrasal verbs into three categories: spatial meanings (also viewed as basic, literal or concrete senses), temporal meanings, and metaphorical meanings (also regarded as abstract or figurative senses) to address a coherent presentation of meaning categories.

I have adopted three strands from the cognitive linguistic studies, containing image schemas, categorisation, and frame semantics, as theoretical underpinnings aiming to answer the research questions in the study. Since all of the theories are exploited as foundations built upon in this thesis, I will now move on to discuss how each of the three cognitive linguistic approaches is used as the rationale behind the design of the worksheets used to collect data in order to answer research question two.

3.1.1 Image Schemas

Rudzka-Ostyn's (2003) study highlights the significant importance of English particles in the process of understanding phrasal verbs. She combines the theory of image schemas by illustrating visual images of particles with their semantic categories to facilitate L2 learners of English to better understand the complex network of meanings of phrasal verbs and their compounds. I adopted Rudzka-Ostyn's concepts, focusing on analysing the meanings of particles to disentangle multiple meanings from phrasal verbs. However, I have revised Rudzka-Ostyn's model and constructed simpler visual images to represent three types of meaning category of particles in terms of space, time and metaphor. Due to the constraints of space and time in the process of data collection, I argue that it is more economical and efficient to exploit simple visual images to introduce the concepts of image schemas to participants.

Another cognitive linguist, Holme (2009), explores the concept of containment of the particle 'in' by using an activity diagram to evoke the meaning senses of another particle, 'on', because it is assumed that both particles share the overlapping concepts of 'surface' which originates from our physical interaction with the world around us. He claims that this kind of classroom activity is more challenging for L2 learners to engage in, because they have to relate the physical meaning of 'in' to the meaning of 'on' by associating the physical relationship between these two particles. However, the use of visual images would be likely to assist L2 learners to overcome difficulty by understanding the concept of the particle 'in' first and then connecting the meaning to the concept of the particle 'on'.

From Holme's study, it is possible to conclude that a combination of concepts with different particles could have a beneficial effect on helping L2 learners to construct meanings on particles. To date, few studies have investigated the opposite relationship between particles. It is well worth exploring commonly used concepts such as containment, contact/ support, and upward/ downward movement in Cognitive Linguistics relating to EFL. Therefore, based on Holme's classroom teaching ideas of exploring the relationship between two particles, this study provides an insight into investigating three opposite sets of particles, consisting of 'in'-'out', 'on'-'off', and 'up'-'down', and which will

be introduced progressively to participants in the training sessions. Cognitive linguists argue that the theory of image schemas helps people grasp metaphorical meanings by utilising basic human concepts of the physical world. For this reason, the concept of image schemas can be used as a tool for L2 learners to understand the complexity of the semantic networks of English particles. In other words, it can be argued that image schemas is useful for facilitating L2 learners to build up broader categories of meanings of particles based on the common conceptualisation.

3.1.2 Categorisation

Although Littlemore and Low (2006) suggest that the approach of categorisation may be less effective in terms of teaching the phraseology of phrasal verbs, some cognitive linguistic researchers (e.g. Boers *et al* 2004; Kövecses and Szabo, 1996) argue that the theory of categorisation can help L2 learners retain a longer memory of metaphorical meanings by introducing their prototypical meanings. One of the findings in Tyler and Evans' (2004) study of the radial category of 'over' suggests that the method of combining an introduction of the prototypical senses with the relevant physical actions has the potential to encourage language learners to use phrasal verbs. Littlemore also suggests that the theory of categories is useful for language teaching and learning, but has practical limitations, for example, the language teacher might only mock-up sample sentences, as she (2009:53) argues as follows:

'Although the idea of developing a syllabus which starts with the prototypical senses of words and then moves out towards the more peripheral uses may be beneficial, in practical terms it is very difficult to imagine how this might be done, as presumably every word or construction would need to be presented in this way, leading to some very artificial - sounding texts'.

Therefore, a major advantage of the present study is that the researcher, based on the main claims of the theory of categorisation, has designed a series of 'Radial Category Diagram' (the term is borrowed from Littlemore, 2009) used in the worksheets to represent three types of meaning sense (space, time, and metaphor) of particles in phrasal verbs in order to stimulate the participants' knowledge networks. Furthermore, in order to improve the weakness that Littlemore suggests above, the sample sentences used in relation to the three types of meaning senses were all selected from corpus data such as *Collins Free Online Dictionary* (<https://www.collinsdictionary.com/>), with the aim of providing authentic usage in the acquisition of phrasal verbs.

3.1.3 Frame Semantics

Cognitive linguists treat vocabulary knowledge as a combination of knowledge of semantics and pragmatics. Meanings emerge from the interaction between humans and the physical world around them. Since human experience is culturally embedded, it can be argued that meanings are culturally influenced. This is the reason why the central claim of frame semantics lies in using our encyclopaedic knowledge to understand a given world. This type of knowledge can be exploited as a token for L2 learners to access another linguistic culture. The meanings of vocabulary are not always interpreted in the same way as those in different languages. It seems that L2 learners can take advantage of L1 encyclopaedic knowledge and apply it to their L2 understanding. For example, Holme (2009: 163) suggests 'Grasping the encyclopaedic meanings of words, and particularly verbs and prepositions, can develop grasp of the more extended construction or combinations of words that are built around them.'

The purpose of using a frame semantic table is to help L2 learners develop knowledge of particles in phrasal verbs used in wider contexts, ranging from concrete to abstract concepts. Thus, a series of 'frame semantics tables' (The term is borrowed from Holme, 2009) were designed and used as teaching and learning materials in this study. Each frame semantic table has three types of situation, which contain the elements of 'space', 'time' and 'metaphor'. Each of the situations also represents a meaning category: 'space', 'time', and 'metaphor'. Based on the same central claims of frame semantics, the researcher also designed a story-creating classroom activity using the materials to invite participants to explore their L2 frame semantic knowledge of particles in phrasal verbs. In general, the design of the teaching and learning materials is to investigate the way in which the cognitive linguistic approach of frame semantics can facilitate EFL learners' acquisition of particles in phrasal verbs.

3.2 Data Collection Methods and Material Design

A series of research instruments: a questionnaire survey, a pre-test paper, a set of worksheets and a post-test paper, as well as interview questions, were devised by the researcher in order to answer two main research questions mentioned earlier in the beginning of this chapter. An overview of the research design is presented below in Table 3.1.

Table 3.1 Research design

RQs	Aims	Research procedures	Data sources	Data analysis purposes
RQ1	- to investigate Mandarin Chinese-speaking English learners' difficulty, strategies, and linguistic knowledge of particles in phrasal verbs before receiving the cognitive linguistic approaches	Phase 1: before the training sessions	Questionnaire	- to analyse participants' learning difficulty and learning strategies towards particles in phrasal verbs
			Pre-test	- to assess participants' understanding of particles in phrasal verbs before the cognitive linguistic approaches are given
RQ2(including 2A and 2B)	- to evaluate the three cognitive linguistic approaches (image schemas, categorisation and frame semantics) applied to the EFL context	Phase 2-1: during the training sessions	Video-recorded data of training sessions and recorded linguistic output	- to identify the patterns of meaning construction on particles in phrasal verbs between English and Mandarin Chinese and how these patterns can be used to improve the acquisition of phrasal verbs

		Phase 2-2: after the training sessions	Post-test	- to assess participants' understanding of particles in phrasal verbs after the cognitive linguistic approaches are given
			Interview	- to explore participants' viewpoints about the uses of the cognitive linguistic approaches

The first phase of the research design aimed to answer research question one: the questionnaire and the pre-test were used to investigate Mandarin Chinese-speaking English learners' difficulty, strategies and their linguistic knowledge about the understanding of particles in phrasal verbs before the three cognitive linguistic approaches were introduced.

The second phase of the research design was divided into two sub-sections to answer research question two. Three cognitive linguistic approaches, consisting of image schemas, categorisation, and frame were adopted to provide the theoretical underpinnings for designing the training sessions. The first sub-section was to implement training sessions, using customised worksheets as teaching and learning materials over a period of three weeks. Participants were asked to use the target particles in phrasal verbs to do in-class tasks which were recorded and collected for the purpose of data analysis. In the second sub-section the participants were asked to fill in a post-test, aiming to evaluate how they conceptualised particles in phrasal verbs after they had completed training sessions based on cognitive linguistic approaches. A comparison of test results could be used as an indication to demonstrate which cognitive linguistic approach is more useful than the others. Finally, interviews with some randomly selected participants were conducted. The interviews were used to advance our understanding of the participating L2 learners' ideas about the extent to which cognitive linguistic approaches can be exploited

in EFL. More details of the data collection methods and research material design are explained in the following sections.

3.2.1 Participants

Two pilot study phases were implemented before the data collection. In the first phase of the pilot study, participants were recruited via social media such as *Facebook*. They were asked to complete the designed questionnaire and the test paper for the purpose of testing the reliability and validity. Five participants, who were all Mandarin Chinese-speaking English learners either based in the U.K or in Taiwan, responded to my pilot test via e-mail exchanges. They were all from higher educational backgrounds involving a wide range of professions. After analysing their scores in the test paper, it seemed that there was no strong correlation between their linguistic knowledge of particles in phrasal verbs and their professional backgrounds. Accordingly, a question item relating to participants' professional backgrounds was removed from the questionnaire.

In the second phase of the pilot study, I continued piloting the revised versions of the questionnaire and the test paper. With the help of a former colleague, an English language lecturer at Chung Yuan Christian University in Taiwan, 12 participants were recruited from that higher education institute. They were all university students with an intermediate level of English proficiency, the results being taken from their university entry exams. Along with the test paper, the test questionnaire accompanied by a feedback form containing a list of seven questions (see below), was distributed to the participants at this stage in order to evaluate the effectiveness of the questionnaire. These seven questions were:

- How long did it take you to complete?
- Was the instruction clear?
- Were any of the questions unclear or ambiguous? If so, which questions and why?
- Did you object to answering any of the questions?
- In your opinion, has any major topic been omitted?
- Was the layout of the questionnaire clear/ attractive?
- Any other comments?

In the actual sampling, 48 participants were recruited from two sites: the U.K. (17 participants) and Taiwan (31 participants) who all share the same L1, i.e. Mandarin Chinese. Seventeen participants in the U.K were recruited from two universities, Newcastle University and Northumbria University; thirty-one participants in Taiwan were

recruited from three universities: Chung Yuan Christian University, National Taipei University and Shih Chien University.

After recruitment, the participants were asked to choose one of three arranged timetables that fitted their individual schedules. Each timetable was designed to implement a particular cognitive linguistic approach, namely, the Image Schemas Training Group, the Categorisation Training Group and the Frame Semantics Training Group. The recruited participants were then divided into three training groups, according to their personal schedules compatible with the timetables I had established for each of the cognitive approaches adopted in this study. Details of the participants in each training group are provided in Chapter 4 (see Table 4.1, p.69).

3.2.2 Data Collection

The overall estimated timeline for the whole data collection was conducted over a four-to-five-week period as can be seen in Table 3.2 below.

Table 3.2 The timeline for data collection

Week	Duration	Research activities	Three adopted cognitive linguistic approaches and the worksheets used		
			IS	CG	FS
1	2 hours	1. The introductory session 2. Consent form signed 3. Questionnaire 4. Pre-test 5. Training Session 1: In-Out in Phrasal Verbs	Worksheet 1	Worksheet 2	Worksheet 3
2	1 hour	Training Session 2: On-Off in Phrasal Verbs	Worksheet 4	Worksheet 5	Worksheet 6
3	1 hour	Training Session 3: UP- Down in Phrasal Verbs	Worksheet 7	Worksheet 8	Worksheet 9

4	40-45 minutes	Post-test	Post-test	Post-test	Post-test
4-5	10-25 minutes	Interview	5 participants were randomly selected from each training group for a one-to-one interview.		

Note. IS = the Image Schemas Training Group. CG = the Categorisation Training Group. FS = the Frame Semantics Training Group.

In the first week of data collection, I explained the purpose and the procedures of this study (see Appendix A). The questionnaire survey (see Appendix C) and the pre-test (see Appendix D) in a written form started with participants who agreed to take part in this study and signed the consent form (see Appendix B). The overall activity was completed within one hour, since the results of the pilot study suggested that this was sufficient time required for completing all of these tasks. In order to investigate participants' initial semantic knowledge of particles in phrasal verbs before they were given the training sessions, I collected 48 sets of questionnaires and pre-test papers from the three training groups (the Image Schemas Training Group: 15, the Categorisation Training Group: 15; the Frame Semantics Training Group: 18).

Immediately after the completion of the questionnaire and the pre-test, the first one-hour training session was introduced. From the first week to the third week, each of the training groups, i.e. the Image Schemas Training Group, the Categorisation Training Group, and the Frame Semantics Training Group would receive three one-hour training sessions based on its own cognitive linguistic approach. Each training session would only focus on a set of opposite particles in phrasal verbs. For example, in Training Session 1, 'in'-out' in phrasal verbs was covered followed by 'on'-off in phrasal verbs in Training Session 2, and 'up'-down' in phrasal verbs in Training Session 3. Nine sets of worksheets (see Table 3.2) were designed and used as teaching-and-learning materials in the training sessions. All the training sessions followed the same procedure, based on the content of the worksheets: (1) a list of 10 target phrasal verbs, (2) a cognitive linguistic theory introduction, (3) a table of sample sentences, and (4) an in-class task. At the end of each of the training sessions the researcher and participants discussed any issues relating to learning and understanding particles and phrasal verbs.

In the fourth week participants were asked to complete a delayed post-test task (see Appendix N), containing thirty question items covering three sections: (1) a gap-filling task using particles, (2) choosing the meaning of the particles using 'S', to represent the spatial meaning, 'T' the temporal meaning and 'M' the metaphorical meaning, and (3) providing a Chinese translation for each phrasal verb. The content of the post-test paper was the

same as those in the pre-test paper; however, the order of the question items was changed in order to avoid guessing from the retained memory of the pre-test paper. The post-test required 40-45 minutes for the participants to complete.

After completing the post-test, five participants were randomly selected from each training group for a one-to-one interview in Week 4 or 5. Each interview was conducted in a semi-structured manner. The next sections move on to describe the design of the materials, encompassing questionnaire, pre-test, training sessions with worksheets, post-test and interview, used for the data collection.

3.2.3 Questionnaire

The reason for using a questionnaire survey (see Appendix C) in this study was to answer research question one, which focuses on the issue of Mandarin Chinese-speaking English learners' personal historical accounts of how particles in relation to phrasal verbs have been developed in the process of learning. The data collected from the questionnaires were in a written format. The questionnaire survey consisted of three parts: a brief introduction of the research purposes, participants' biodata, and two open-ended question items. These two main questions are shown below:

- Can you tell me any situations where you have found difficulty in terms of learning English phrasal verbs?
- Can you tell me how you learn English phrasal verbs? Please write down as many ways you can think of.

It is worth explaining that the use of two open-ended question items in the questionnaire sought to investigate the following. The first item was to examine L2 learners' personal perceptions of difficulty posed when learning English phrasal verbs; the second was to explore their strategies for learning phrasal verbs. The researcher did not set up close-ended questions because she wished to obtain richer data from the L2 learners' perspective on learning particles in relation to phrasal verbs, instead of understanding viewpoints drawn from language teachers or researchers. Overall, the purpose of the adopting the questionnaire was to explore EFL learners' understanding of particles in conjunction with phrasal verbs in terms of their learning difficulty and learning strategies, before implementing the training sessions with the cognitive linguistic approaches.

3.2.4 Pre-test

Along with the questionnaire, a pencil-and-paper form of pre-test (see Appendix D) was used to identify difficult items and the degree of familiarity with the target phrasal verbs from the participants' perception and knowledge of particles in phrasal verbs. The test consisted of 30 gap-filling items, accompanied by a section for Chinese translations of phrasal verbs. Thirty target phrasal verbs, which include a combination of 5 main verbs 'come', 'go', 'get', 'put' and 'take' with 6 particles 'in', 'out', 'on', 'off', 'up' and 'down', were all tested in the question items. These phrasal verbs are shown in Table 3.3 below.

Table 3.3 A combination of thirty target phrasal verbs selected for this study

<u>Particle</u> <u>verb</u>	in	out	on	off	up	down
come	come in	come out	come on	come off	come up	come down
go	go in	go out	go on	go off	go up	go down
get	get in	get out	get on	get off	get up	get down
put	put in	put out	put on	put off	put up	put down
take	take in	take out	take on	take off	take up	take down

Although extensive cognitive linguistic research has been carried out on language acquisition of particles within phrasal verbs (Lu & Sun, 2017; Yasuda, 2010; to name just a few), no single study that focuses on these thirty commonly used phrasal verbs exists. This indicates a need to investigate how these seemingly common and easy phrasal verbs always cause issues of non-understanding or misunderstanding that Mandarin Chinese-speaking English learners have to face.

English phrasal verbs usually have multiple meanings, and this causes difficulty for EFL learners seeking to make sense of phrasal verbs in various contexts. It can be argued that Mandarin Chinese-speaking English learners tend to construct meaning on phrasal verbs by conceptualising the main verbs within phrasal verbs. However, some studies (Lindstromberg, 1996, 2010; Rudzka-Ostyn, 2003; Tyler & Evans, 2003) see this issue from a different perspective; they focus on analysing the meanings of particles in order to understand phrasal verbs. There is still little research on teaching and learning a combination of the highly-frequent main verbs and highly-frequent particles. Thus, this study sought to focus on the semantic values of particles by examining Mandarin Chinese-speaking L2 learners' acquisition of phrasal verbs. Based on Schmitt & McCarthy's (1997) study, thirty phrasal verbs (see Table 3.3) were selected as target items in this project. These phrasal verbs combine the top five highly-frequent main verbs:

'come', 'go', 'get', 'put' and 'take' with the top six commonly used particles: 'in', 'out', 'on', 'off', 'up' and 'down'. Furthermore, the six particles were divided into three opposite sets: 'in'-'out', 'on'-'off', and 'up'-'down', because recent cognitive linguistic literature (Holme, 2009) claims that one can help understand the meanings of the other. For example, in order to understand the multiple meanings of 'out', the concept of 'in' can help complement the meanings of 'out' by understanding the two opposite concepts. 'In' represents a concept of moving inward, whereas 'out' symbolises a concept of moving outward. Hence, this study would be useful to help L2 learners acquire the particles used in phrasal verbs more economically and efficiently by learning them in a contrasting and systematic manner.

This thesis aims to provide a wider range of contexts that demonstrate how particles in conjunction with phrasal verbs can be used; thus, the question contexts in the test paper and the sample sentences in relation to phrasal verbs used in the study were collected from two free online dictionary resources: *The Free Dictionary* (www.thefreedictionary.com), and *Collins Free Online Dictionary* (www.collinsdictionary.com). The sources of *The Free Dictionary* cover four dictionaries: *McGraw-Hill Dictionary of American Idioms and Phrasal Verbs*, *Cambridge Dictionary of American Idioms*, *The American Heritage® Dictionary of Idioms*, and *The American Heritage® Dictionary of Phrasal Verbs*. The sources of *Collins Free Online Dictionary* consist of three dictionaries: *COBUILD Advanced English Dictionary*, *Collins English Dictionary* and *Webster's New World College Dictionary* (4th Edition). The dictionary entries in *Collins Free Online Dictionary* are collected from corpus data, involving the current usage of idioms and phrasal verbs in British English, American English and Australian English. Moreover, this dictionary also indicates the extent of the frequent usage of phrasal verbs.

The data collection of the pre-test was conducted in an off-line pencil-and-paper form with 30 question items, containing two main parts: a section of 30 gap-fillings and a section of Chinese translations of phrasal verbs. In terms of the first section, each gap was embedded within a phrasal verb in an English sentence, where the context served as a prompt. Six options of particles: 'in', 'out', 'on', 'off', 'up' and 'down', were equally used in the question items; they were presented at the top of the test paper sheet to avoid confusion over the range of potential particles elicited, and only one of which would fit the semantic context. The column next to the answer box for the particle was a space for participants to provide the Chinese translation of each phrasal verb in the given sentence context, intended to help avoid guessing the only possible option of the particle and also help the researcher to explore the issue of meaning construction on particles in phrasal verbs more comprehensively. As Messick (1993) claims that there is no ideal test existing

to measure language proficiency due to its complexities encompassing various understanding and skill elements. Every type of test format will certainly sacrifice validity to some extent. Given that the purposes of the pre-test and the post-test, a fill-in-blank format along with a Chinese translation might have been the best choice in this study, because that has the potential of measuring a combination of skills and knowledge associated with the comprehension and production of written language in an efficient manner. Below is an explanation and a sample question extracted from the pre-test paper (see Appendix D):

Please choose the best particle provided below for each of the following questions and write down the Chinese translation of each phrasal verb:

in	out	on	off	up	down
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Example:

Particle	Chinese Translation	Sentence
in	進帳	She has no money coming____and no funds.

There were two phases in the pilot study of the pre-test paper. In the initial design of the pre-test paper consisting of 30 questions, the researcher devised a table listing 30 target phrasal verbs for participants to choose in a gap-filling task. The pilot test paper aimed to examine: (1) the rate of accuracy in terms of providing the correct phrasal verb responding to the given sentence, and (2) the time required to complete the test. A sample question in relation to the first design of the pre-test is shown as follows:

I. Fill in the gaps: Choose the best phrasal verbs for each of the following questions. Each phrasal verb is only used once. Fill in your answers in the front blanks. Please do not check the dictionaries. (Time taken: 30 minutes).

come in	go in	get in	take in	put in
come out	go out	get out	take out	put out
come on	go on	get on	take on	put on
come off	go off	get off	take off	put off
come up	go up	get up	take up	put up
come down	go down	get down	take down	put down

1. _____ and enjoy yourself, make new friends.
--

The test results were collected from five participants in the UK and Taiwan via e-mail exchange. Two main findings emerged from the first phase of test piloting. Firstly, the results showed that in a large proportion of question items the correct answers were rarely presented. Secondly, the participants reported that the task was too difficult to complete in the period allocated. The findings suggested that the time participants required to complete the test was 50 minutes to an hour, and this was not considered practical or effective for collecting data. The researcher re-examined the gap-filling task carefully and found that the test was challenging due to the complexity of choosing one accurate answer amongst thirty phrasal verbs in response to one sentence context. Moreover, this test also failed to reflect the research aims proposed in this study and which was to explore the vital role that particles play in the process of understanding phrasal verbs. The design of this test was accordingly revised for the second phase of test piloting.

In order to focus on understanding the relationship between particles and phrasal verbs, in the second version of the test paper the researcher highlighted a selection of six target particles and asked participants to choose the best one to fit a given sentence. In addition, participants were asked to provide a Chinese translation of each phrasal verb in a given sentence context, because this test section might provide important insights into understanding participants' meaning construction on particles in phrasal verbs despite the incorrect particles provided. Meanwhile several sentence contexts were revised by a native English speaker who is currently a PhD student with several years of English teaching experience. The results of the second pilot test revealed that the correct answers were given to a larger proportion of the questions, while the required duration of the test was now approximately 30-35 minutes. After completing the test, the participants pointed out that they had not experienced any confusion with the test procedures and question items. The test material was, therefore, considered adequate and ready for the formal pre-test session with Mandarin Chinese-speaking English learners.

3.2.5 Training Sessions and Worksheets

Given the aim of research question two, exploring how the three cognitive linguistic approaches can affect Mandarin Chinese-speaking L2 learners' acquisition of English particles relating to phrasal verbs, the researcher set up three types of training session particularly designed for each of the cognitive linguistic approaches. Accordingly, the recruited participants were randomly grouped into three training groups, namely, the Image Schemas Training Group, the Categorisation Training Group and the Frame Semantics Training Group, to reflect the features of each of the three cognitive linguistic approaches. Each training group received three training sessions, focusing on three separate themes covering 'in'-'out' in phrasal verbs, 'on'-'off' in phrasal verbs, and 'up'-'

'down' in phrasal verbs, as can be referred to in Table 3.2 above. The structure and functions of the training sessions as well as the design of worksheets are explained in the following.

Two types of data were collected in the training sessions: video recordings of all the training sessions and a recorded language task of the participants' written production. The duration of each training session was approximately one hour. The reason for collecting these two types of data was straightforward. The researcher needed to make sure that all of the information from the training sessions was well-documented, so that this study ended with good quality data. Although it has been suggested that analysing video-recorded data is never an easy task, video recording was still undertaken in order to obtain nonverbal cues such as body language, gestures and facial expressions of the participants.

The participants were informed at the beginning of their training session that they would be video-recorded in each session. This video-recorded data would be used only for the purpose of data analysis, and the identity of the participants are kept confidential. A Sony digital video camera was set up in the training room, and directed towards the participants and researcher while they were taking part in the training sessions. In an attempt to record the data as naturally as possible, the video camera used for this recording was small and inconspicuous. It appeared that the researcher and participants were not consciously aware of the existence of the video recording in the process of the training sessions.

Each training session included three sub-sections: (1) an introduction of the target particles within the selected phrasal verbs given by the researcher herself, (2) an in-class task for the participants to practise how to use those given particles in phrasal verbs, reflecting a cognitive linguistic approach which they had been introduced to, and (3) a final discussion of their language acquisition and production to ensure the questions had been answered and any misunderstanding or non-understanding had been clarified. After completing the sessions, two types of data (the video recording of the training session and a recorded linguistic output) mentioned above were collected by the researcher. The information collected in all the training sessions was useful for the researcher to analyse valuable qualitative data. These data would be used to explore how participants reflected their conceptual frameworks in the use of particles and phrasal verbs and further supplemented the test results (the pre-test and the post-test).

Little literature has been published to describe the use of worksheets in the language classroom, either in theoretical areas or in practical domains. However, Doff (1988: 244) suggests 'Worksheets can be a great help to the teacher in organising oral activities in

pairs and small groups, and also for simple reading and writing tasks.’ The researcher designed a unique series of worksheets as a type of research tool so that participants can spend time working alone at their own speed or work with other group members when they feel deprived of intellectual stimulation. Another reason for using a worksheet is its flexibility: for example, it can provide additional exercises to supplement the textbook, or adapt the exercises to fulfil various teaching needs. That is, the researcher could use worksheets for various purposes; for instance, she could make changes to the content of worksheets, reflecting the theoretical underpinnings of each of the cognitive linguistic approaches adopted in this study, for participants in different training groups to explore the cognitive linguistic approach assigned.

The worksheets were used as teaching and learning materials in all the training sessions; consequently, nine sets of worksheets in total were designed to fulfil the needs that each individual training session required. To increase the reliability and validity of measures, the same set of sample sentences was used for the same topic of particle. As can be seen in Table 3.2 above, the same set of sample sentences was used in Worksheets 1, 2, and 3 (see Appendix E, F, and G), because they were employed to introduce the same topic: ‘in’-‘out’ in phrasal verbs. However, each worksheet was used to reflect its own cognitive linguistic approach. The design for Worksheets 4, 5 and 6 (see Appendix H, I and J) and Worksheets 7, 8 and 9 (see Appendix K, L and M) followed the same procedures. Each worksheet has the same structure, containing four main sections as follows:

- A list of ten target phrasal verbs: This combined five main verbs (‘come’, ‘go’, ‘get’, ‘put’, and ‘take’) with two opposite-set particles (‘in’-‘out’, ‘on’-‘off’, and ‘up’-‘down’) to form 10 selected phrasal verbs applied to each worksheet.
- A theoretical framework: A visual representation was used for the cognitive linguistic approach of image schemas (Lakoff & Johnson, 2003; Rudzka-Ostyn, 2003), a radial category diagram (Littlemore, 2009) was constructed for the cognitive linguistic approach of categorisation, and a frame semantic table (Holme, 2009) was illustrated for the cognitive linguistic approach of frame semantics to address the features of each of the cognitive linguistic approaches, aiming to assist Mandarin Chinese-speaking English learners to construct meanings on particles in phrasal verbs. A comprehensive rationale for the design of worksheets and how it reflects the practical application of the worksheets is clearly explained in the above sections (3.1.1 to 3.1.3).
- A table of sample sentences in relation to ten target phrasal verbs: This table contained six sections: two rows for two target particles and three columns for three types of meaning senses covering space, time and metaphor.

- An in-class task: Three types of classroom exercises were designed to meet the training purposes for each of the cognitive linguistic approaches. For example, a task of sentence-making specifying the function of phrasal verbs was designed for the cognitive linguistic approach of image schemas. A task of constructing a word map covering spatial, temporal, and metaphorical meanings was designed for the cognitive linguistic approach of categorisation, and a task of writing a story using a set of target phrasal verbs was designed for the cognitive linguistic approach of frame semantics.

All the worksheets were employed to investigate meaning construction on particles in phrasal verbs, focusing on six particles in phrasal verbs and then further classified into three opposite pairs: 'in'-'out' in phrasal verbs, 'on'-'off' in phrasal verbs, and 'up'-'down' in phrasal verbs. The system of classifying the meaning senses of these six target particles was based on Rudzka-Ostyn's (2003) *Word Power: Phrasal Verbs and Compounds—a Cognitive Approach*. This textbook can be used in the EFL classroom or for self-study. Rudzka-Ostyn's textbook provides new insights into learning phrasal verbs by focusing on the meaning networks of particles. She explores two strands in the cognitive linguistic approaches, consisting of image schemas and categorisation, to demonstrate 17 particle-based phrasal verbs and their compounds, using abstract visual representations to build a semantic network for each particle. When it comes to meaning classifications, Rudzka-Ostyn raises an awareness of the semantic values of particles relating to phrasal verbs. However, Rudzka-Ostyn does not draw clear distinctions among the meanings of space, time and metaphor. As addressed in the research questions, EFL learners encounter learning difficulty of phrasal verbs to some extent. It is crucial in this study to explore different level of learning difficulty in terms of semantic values of phrasal verbs and how the teaching and learning approaches can be adopted and how they can facilitate EFL learners to understand phrasal verbs. The study would have been more useful if a much more systematic approach were to identify the meaning categories of particles in phrasal verbs. Therefore, the researcher adopted Dirven & Verspoor's (2004) three types of meaning senses, encompassing space, time and metaphor, seeking to develop an organised training to explore the cognitive linguistic approaches in EFL applications. Another reason for adopting Rudzka-Ostyn's model was that this study also shared the same purpose for helping L2 learners to develop learning autonomy by using worksheet units or exercises on their own.

The sample sentences applied to the worksheets were collected from two main online dictionary resources. The number of dictionary entries collected for 30 target phrasal verbs was approximately 1200 samples which were rigorously examined and classified into three categories, i.e. space, time and metaphor. However, the analysis and the

process of classifying the meanings of phrasal verbs was problematic. For example, a phrasal verb may have multiple meaning senses. Among these meanings, there is no clear-cut definition to categorise them; instead, the meanings are overlapped. It seems that these meaning senses are presented in a spectrum. Another issue was in relation to 'personification'. Understanding and classifying the meaning of this could be complicated. Below there are two examples that share the same meaning but have different linguistic effects. The first example can be categorised into the meaning of 'space'; however, the second can be considered as the meaning of 'metaphor' (Lakoff & Johnson, 2003).

- Jonathan noticed a new apartment building going up near Green Park.
- The new apartment building is going up near Green Park.

It was not possible to investigate the significant relationships of three meaning categories further, due to the constraints of research focus and time. Therefore the researcher established criteria to decide the meaning categories based on the major meaning sense in a given context, regardless of the grammatical value and linguistic effect.

The 30 target phrasal verbs were calculated as the top 4000 to 10,000 most frequently used vocabulary items identified from the corpus data of *Collins English Dictionary*. These phrasal verbs were chosen on the account of their frequent usage, because the frequency of vocabulary used in the EFL context is generally seen as a factor related to foreign language teaching and learning. From a pragmatic perspective, L2 learners of English could also benefit from learning these commonly used phrasal verbs while participating in the study. The procedures of classifying the meanings of six target particles in phrasal verbs are as follows:

- Collect dictionary entries of thirty target phrasal verbs (see Table 3.2 above) from two online dictionary resources, as mentioned previously in Section 3.2.4.
- Classify the multiple meanings of each phrasal verb into three categories, in terms of meaning of space, time and metaphor and mark S (short for 'Space'). T (short for 'Time'), and M (short for 'Metaphor') on each dictionary entry.
- Unify three separate meaning categories under the same topic of particle, and select sample sentences comprising five phrasal verbs which share the same particle. For example, phrasal verbs such as 'come in', 'go in', 'get in', 'put in', and 'take in' are classified into the same group due to the particle 'in' that they share.
- Finally, create six separate tables based on the topic of particle with their relevant phrasal verbs and sample sentences, using three columns in one table to represent the meaning of 'Space', 'Time' and 'Metaphor'.

Turning now to describe the content of the worksheets, each worksheet was designed for the purpose of reflecting how the theoretical implications can be exploited in the teaching and learning practice. The pair of particle: 'in' and 'out' was introduced in Worksheets 1, 2 and 3. For example, Worksheet 1 (see Appendix E) focuses on the cognitive linguistic approach of image schemas, Worksheet 2 (see Appendix F) centres on the cognitive linguistic approach of categorisation, and Worksheet 3 (see Appendix G) pays attention to the cognitive linguistic approach of frame semantics. The purpose was to address the same set of particles by using different approaches. The researcher replicated the original design of Worksheets 1, 2 and 3 to further complete the designs of Worksheets 4, 5 and 6 (see Appendix H, I and J) focusing on 'on' and 'off' in phrasal verbs, and Worksheets 7, 8 and 9 (see Appendix K, L and M) centring on 'up' and 'down' in phrasal verbs.

When it comes to the cognitive linguistic approach of image schemas, for example, the researcher used the visual image of a box (see below Figure 3.1) to represent both concrete and abstract concepts of a container. Two boxes were illustrated showing one box with an arrow moving inwards (representing the concept of 'in'), the other with an arrow moving outwards (representing the concept of 'out'). In order to enhance participants' understanding of phrasal verbs by using the container schema, the researcher encouraged participants to use their physical experience and imagination to identify the function of the container used in the sample sentences. The importance of adopting the image schematic approach is to conceptualise an abstract concept by analogy with a concrete idea. In order to enhance the learning of this cognitive linguistic approach participants were asked to complete an in-class task, using the given phrasal verbs to make sentences and also specifying the function of 'in' and 'out' in the sentences they made. Following the same design, the concepts of contact/ support schemas were used in Worksheet 4 (see Appendix H) in order to understand the pair of particle: 'on'-'off' in phrasal verbs; the concept of vertical schemas, 'up'-'down' in phrasal verbs, were applied to Worksheet 7(see Appendix K).

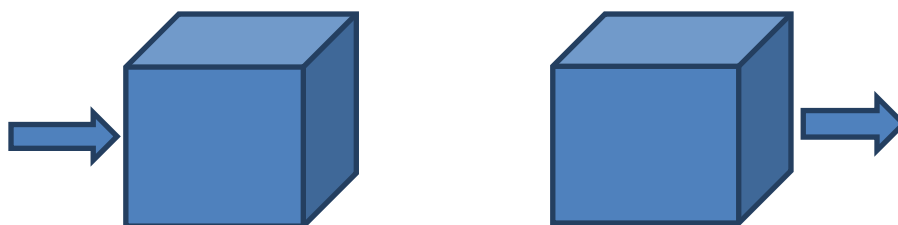


Figure 3.1 An example of a container for 'in' and 'out' based on the theory of image schemas

The cognitive linguistic approach of categorisation was used in Worksheets 2, 5 and 8 (see Appendix F, I, and L) by illustrating radial category diagrams to represent the relationships of meaning senses of target particles. As shown in Figure 3.2, the radial category diagram includes two to three hierarchies (from left to right showing the meaning of space to time and metaphor). The reason for showing two hierarchies was due to lacking the meaning of time. In order to help participants acquire the multiple meaning senses of a given particle, the researcher provided each meaning sense with a sample sentence in a radial category diagram. The radial category diagram presents the relationship between prototypical and peripheral meanings. The prototypical meaning is defined as the meaning of space in the study and the rest gradually develop into peripheral meanings, that is, the meanings of time and metaphor. The meaning senses used in this study to describe various concepts of six target particles were adopted from Rudzka-Ostyn's (2003) textbook: *Word Power: Phrasal Verbs and Compounds—a Cognitive Approach*. In order to enhance participants' understanding of particles in phrasal verbs, they were asked to construct a word map accompanied by sentence-making in the use of a given set of phrasal verbs, covering meanings of space, time and metaphor. The aim of employing this type of in-class task was to help participants not only explore culture-embedded information, but also reproduce L2 knowledge representation of particles in phrasal verbs: central categories, superordinate categories and subordinate categories of meaning senses.

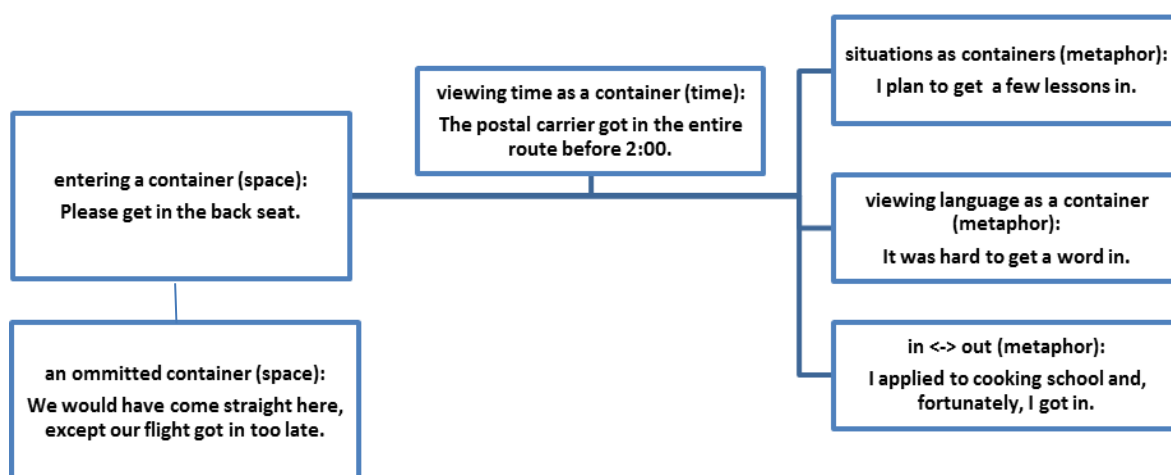


Figure 3.2 An example of a radial category diagram for the phrasal verb, get 'in', based on the theory of categorisation

The cognitive linguistic approach of frame semantics was used in Worksheets 3, 6 and 9 (see Appendix G, J and M) by exploiting a frame semantic table to demonstrate how a given phrasal verb can be used to combine with its meanings and contexts in use. The term *frame* (Fillmore, 1977) expresses a concept of encyclopaedic knowledge of the

physical world that people use as a basis to understand the meaning of language. Therefore, a *frame* refers to a story involving ‘w’ words, such as *who*, *what*, *how*, *when*, *where* or *why*. Table 3.4 below is an example used in Worksheet 3 (see Appendix G) to exhibit a frame-semantic approach inviting participants to see how the phrasal verb ‘put in’ can be used in three different situations, in terms of space, time and metaphor. The syntactic features of English, such as subject, verb and object, were specified at the top of the frame semantic table. One particular feature highlighted in the table was the last column ‘why’, because the researcher had two purposes: (1) to inspire participants to consider the reasons for using a phrasal verb in a given context; (2) to raise participants’ collocational awareness of phrasal verbs. When it came to the in-class task, participants were asked to create a story using a given set of a target particle in phrasal verbs. The researcher and participants both benefitted from the in-class task as it helped the researcher to further investigate how participants applied the theory of frame semantics to practice. Moreover, it also helped participants to associate the meanings of one particular phrasal verb with various contexts in use.

Table 3.4 An example of a frame semantic table for the multi word verb, put ‘in’, based on the theory of frame semantics

situation	Who	put in	whom/ what	why
space	The electrician	put in	a new outlet	for the building
time	Wade	put in	40 hours	for a salary
metaphor	I	put in	a good word for you	for giving a piece of advice

3.2.6 Post-test

The researcher took advantage of the pre-test and the post-test as data collection instruments in order to compare how the three cognitive linguistic approaches could impinge on participating Mandarin Chinese-speaking English learners’ acquisition of phrasal verbs after all the training sessions were introduced. The post-test consisted of three tasks: (1) a gap-filling task choosing the correct particle; (2) a multiple choice of the meanings of the particle, in terms of space, time and metaphor; (3) the Chinese translation of each phrasal verb in a given sentence context. In order to resolve the confusion over the test, the researcher underlined key points to help participants engage in the post-test process. Below is the example and explanation of the test format. The full version of the post-test paper can be referred to in Appendix N.

In each question, first write down the best particle: in, out, on, off, up or down. Second, select S (meaning of space), I (meaning of time), or M (meaning of metaphor) for the meaning of the particles. Third, provide the Chinese translation for the phrasal verbs.

Example:

Particle	S/T/M	Chinese Translation	Sentence
in	M	進帳	She has no money coming____and no funds.

The content of the thirty question items provided in the post-test was the same as those in the pre-test, but the order of the question items was changed in order to avoid the participants' memory retention of the pre-test. In addition, the researcher added another section, of choosing the meaning categories of the particles with the aim of assessing which of the cognitive linguistic approaches employed in this study could help participants better understand the meaning categories and raise a metaphorical awareness.

3.2.7 Interview

Critics (Dörnyei, 2007) have argued that interviews have weaknesses, such as being time-consuming, the good communication skills that the interviewer must have, or the unpredictability of the interviewees' speech styles. However, interview data were still considered useful for this study because an interview is usually conducted in a natural social setting where people can express their opinions about the given topic in a conversation, instead of providing written information only. The interviews implemented in this study pursued the aim of understanding how the three cognitive linguistic approaches might assist Mandarin Chinese-speaking English learners with meaning construction on particles relating to phrasal verbs. As a result, these interviews would provide richer qualitative data for the researcher to further assess to what extent each of the cognitive linguistic approaches could facilitate teaching and learning particles in phrasal verbs in EFL, and complement the quantitative data gained from the results of the pre-test and the post-test.

Dörnyei (2007: 136) suggests that 'In applied linguistic research most interviews conducted belong to the "semi-structured interview" type, which offers a compromise between two extremes: although there is a set of pre-prepared guiding questions and prompts, the format is open-ended and the interviewee is encouraged to elaborate on the issues raised in an exploratory manner.' This study wished to take advantage of semi-

structured interviews to compensate for the weakness of the quantitative data, because the quantitative data obtained from the test results are likely to overlook much of the depth and breadth of the respondents' stories. The semi-structured interview was seen as an appropriate tool to probe more deeply into the research questions.

Preparation for the interviews in this study consisted of a series of carefully designed steps: finalising the sampling plan, formulating the interview questions, piloting the interview, and preparing an interview guide. First of all, the finalised sampling plan was determined to collect data from the U.K and Taiwan, given that participants were mainly recruited from these two sites. The interviews were conducted in English, because that would help while coding the interview question data.

When it comes to formulating interview questions, Patton (2002) suggests that six major types of content question can be asked on any given topic in an interview: (1) biodata or background information, (2) sensory information, (3) experiences and behaviours (4) feeling, (5) knowledge; (6) opinions and values. I articulated six question items to reflect three types of content question that Patton suggests, that is, one feeling question, one knowledge question, and four questions in relation to opinions and values. These questions helped the researcher to understand the participants' overall view and their experience of learning particles within phrasal verbs in the training sessions given for this study. In order to encourage the interviewees to offer a more full response to questions, salient content words such as 'Yes, *how?*' or 'No, *why?*' were provided as prompts to help generate more elaboration on the question.

After drafting the interview questions, the researcher ran two interview pilots conducted in English: one was interviewing an English native speaker and the other was a Mandarin Chinese native speaker. An issue of wording emerged from the pilot interviews so the researcher revised the wording of the questions, following suggestions offered in the qualitative interview literature: posing brief, simple questions with one idea at a time. Moreover, the researcher added a final question item— 'Is there anything else you would like to say?' in the closing stage of interview. The entire set of interview questions with prompts is included in the interview guide (see Appendix O). It has been suggested that an interview guide can play a useful role in data collection (Dörnyei, 2007; McCracken, 1988), so a suitable interview guide was prepared. In this study, the interview guide had the following functions: (1) offering a list of suggested interview questions and prompts aiming to investigate research question two, (2) ensuring that the interview would follow standard procedures; (3) providing a framework for the researcher to employ in the process of interview. During the interviews, the researcher kept an interview log to record the details and content provided by the interviewees as well as the interviewer's own

comments and notes. To sum up, the interview guide along with the interview log helped the researcher to maintain the quality of the interviews, and offered more space and time to record as much information as possible.

Interviews were conducted in the U.K and Taiwan with randomly selected participants who had completed all the training sessions in the use of the cognitive linguistic approaches adopted in this study. On account of the proportion of participants recruited in this study, five participants (2 from the UK and 3 from Taiwan) were chosen from each of the training groups for interview using the same set of interview questions, aiming to explore the participants' experience of learning particles in phrasal verbs via the cognitive linguistic approaches. The selection of interviewees was done by drawing lots. Their individual names were written on a sheet of paper, rolled and placed in a box. The box was shaken well to give an even distribution of pieces of paper. Two names were picked from the labelled boxes in the U.K. and three were picked in Taiwan. After selecting the interviewees, the interviews were conducted on a one-to-one basis. A list of suggested interview questions (see Appendix O) was given to the individual interviewee three to five minutes before the actual interview started. There are two benefits of giving the interview questions in advance: one is the opportunity to clarify any confusion over the questions; the other is to allow the interviewee some time to reflect on his or her learning experience and what has been gained from the training sessions.

At the outset of each interview, the purpose of the research and the need for audio-recording the interview were explained to the individual interviewee. Two types of qualitative data were gathered during the interview, that is, note-taking and audio-recorded data. The literature indicates that note-taking in a semi-structured interview is not enough for the researcher seeking to record all the details given by the participants. The advantage of audio-recorded data is that it can provide information missing from the notes made during the interview, because an interview is a demanding activity with a number of aspects that the interviewer needs to deal with simultaneously. In order to record the interview data as fully as possible, the researcher used an interview log to combine the interview guide (as described above) with her interview notes and comments, as well as the audio-recorded data obtained from each individual interview. All the data were then compiled into one computer file that could help the researcher analyse the data in an economical and efficient manner.

3.3 Data Analysis

The research for this study was derived from five major sources: (1) an investigation of learning difficulty and learning strategies towards English phrasal verbs involved a

detailed question survey of Mandarin Chinese-speaking English learners' perspective, (2) a pre-test of EFL learners' entry linguistic knowledge of how they construct meanings on particles in phrasal verbs, (3) a set of recorded linguistic data and observational data obtained from the training sessions to explore to what extent EFL learners can benefit from the cognitive linguistic approaches in the acquisition of particles in relation to phrasal verbs, (4) a post-test to demonstrate EFL learners' mastery of their conceptual knowledge of particles in phrasal verbs after receiving the training, and (5) interviews with some randomly-selected participants to reflect their insights into the employment of the cognitive linguistic approaches in terms of understanding particles in phrasal verbs. Turning now to the description of the analysis of the data, this is explained in detail in the following.

3.3.1 Analysis of Questionnaire Survey

Due to the content of the questionnaire in this study, which was based on two open-ended question items, I adopted the same analysing procedures as those for the qualitative data. According to Dörnyei (2007), there are four steps to analysing this type of data: (1) transcribing, (2) initial coding and secondary coding, (3) categorising and (4) interpreting the data and drawing conclusions.

Firstly, the written-recorded data of the questionnaires was transcribed word-for-word. Not only English but also Mandarin Chinese were used in the questionnaire survey because the participants could choose whichever language they were comfortable with, to express their perceptions of the given questions more clearly. Therefore I had to translate some of the questionnaire data into English. After reading the transcribed data many times, I started my second phase of analysing the data—coding. In the process of coding, I used the traditional method—highlighting extracts of the transcribed data of the questionnaires in a form of hard-copy printouts and then labelling specific language chunks. For example, Participant IS-01 mentioned that 'limited memory and space for memorising' restricted his acquisition of English phrasal verbs. I employed 'in vivo' coding to label some key words in the actual texts to represent the explicit descriptions of the codes and the precise responses from the original extracts. Following the initial coding, I launched a secondary coding to go through all of the participants' accounts and to display all the key words I had identified in the initial coding process. Similar or closely relevant categories were then compiled under a broader code, taking Participant IS-01's response to the question item in relation to learning difficulty with English phrasal verbs as an example again. The response of 'limited memory and space for memorising' was further classified under a broader category 'insufficient rote learning', because the rote learning process involves memorising something by repetition within limited memory capacity. The original transcriptions had been revised more than once based on the new categories in order to

meet the criteria of the validity of the code. Finally, Mandarin Chinese English learners' experience of learning difficulty and learning strategies toward phrasal verbs were reported.

3.3.2 Analysis of Pre-test and Post-test

When it comes to scoring the tests, one point was awarded as a score for each question item in each section both in the pre-test and the post-test. Thus a score of 30 points was the highest and a score of 0 points was the lowest in each section of the tests. The scoring of the tests enables the researcher to report the results section by section and whole test by whole test. It is worth noting that the criterion of scoring the section of Chinese translation was based on the definitions and usage suggested by the dictionary resources mentioned previously, in order to avoid the researcher's subjective opinions.

There were three main stages to analysing the data obtained from the pre-test and the post-test. These were: (1) an analysis of the pre-test papers, (2) an analysis of the post-test papers and (3) comparing the results of the pre-test and the post-test.

At the first stage of analysing the results of the tests, descriptive statistics were used to help the researcher summarise the findings by presenting the general tendencies of the data and the overall spread of the scores obtained from the Image Schemas Training Group, the Categorisation Training Group and the Frame Semantics Training Group. Simple statistical analysis was used to measure the mean scores (for measures of central tendency) and standard deviation (for measures of variability) of the three cognitive linguistic training groups. Statistical analysis was performed using SPSS software (version 24). Combining all the statistical analysis of the three cognitive linguistic training groups a detailed analysis of significant data, such as conflicting answers provided in the test section of particles and the Chinese translation of the phrasal verbs, were reported in order for the researcher to understand participants' entry concepts of six target particles in thirty phrasal verbs.

Concerning the second stage of analysing the data emerging from the post-test, the same procedures, which contained the descriptive statistics as well as an in-depth description of how participants responded to thirty question items, were followed.

The final stage of analysing the pre-test and the post-test was divided into three sub-stages: (1) comparing the raw scores of the pre-test and the post-test gained by each of the cognitive linguistic training groups, (2) comparing the results of the post-test amongst the three cognitive linguistic training groups, and (3) a detailed breakdown of the scores

(the accuracy rate) in the pre- and post-test by each target phrasal verbs. There were some purposes regarding these sub-stages of data analysis. Firstly, paired-samples t-tests were used to analyse the differences between the scores gained by participants in the same training group before and after the training sessions; therefore, the researcher conducted a respective paired-samples t-test for each of the cognitive linguistic training groups. Secondly, ANOVA was used to assess the significances of the mean scores obtained from the post-test amongst the three cognitive linguistic training groups in order to further examine the effect of each cognitive linguistic approach that can exert on participants. Thirdly, the accuracy rate for each individual question items tested in the pre- and post-test was presented in tables in order to provide a deeper understanding of data results for the phrasal verbs selected in this study. The results with reference to t-tests, ANOVA, and a summary of scores in the pre- and post-test will be demonstrated in the subsequent sections in Chapter 8.

3.3.3 Analysis of Training Sessions and Worksheets

When it comes to analysing the data of training sessions and worksheets, the cohort of video recordings and recorded linguistic data were gathered from the whole series of training sessions, in an attempt to explore how Mandarin Chinese-speaking English learners interacted with three adopted cognitive linguistic approaches in this study, in terms of teaching and learning particles in phrasal verbs. The data from each training session was collected at two stages. At the first stage, in order to record the data of the training session as comprehensively as possible, two complementary strategies were necessary. In other words, a combination of the researcher's diary and video data was used in the data analysis, because these were regarded as the products during the training sessions. As far as the second stage was concerned, a recorded linguistic task was collected due to the fact that it was viewed as an immediate product after the training session. Based on these further transcribing, coding and classification were conducted.

In accordance with the purposes of two-stage data collection, the data from the training sessions was analysed and classified into two types: one was data gathered during the training sessions (video recordings and the researcher's diary); the other was the data (a recorded linguistic task collected in the worksheets) obtained immediately after the training sessions. Examining these two categories of data might help this study to be more useful to analyse how the cognitive linguistic approaches interacts with Mandarin Chinese-speaking English learners in the EFL context. All the data analysis was based on the topic of the target particles. For example, regarding the theme of 'in' in phrasal verbs, several participants' responses or comments relating to this target phrasal verb were compiled and given a code 'in'. After coding, relevant data extracts were collected and

further classified into three sub-themes: semantic space, semantic time and semantic metaphor. As a result, the data can be connected back to the evaluation of the cognitive linguistic approach of image schemas, categorisation or frame semantics through the layers of detail in order to answer the research questions. However, some limitations appear and restrict the participants' employment of multiple meanings of particles in phrasal verbs in their learning.

At the initial stage of data analysis, the first step was to transcribe a combination of the video recordings of the instructions about the worksheet content focusing on the given theoretical knowledge, with use of a relevant sample sentence and the researcher's diary. In order to find ways to observe participants' feelings or thoughts about the given training sessions, based on the assumption proposed by Gass & Mackey (2000), it is possible that one's mental process can be observed via a verbal report. Thus, I used the video recordings to gain information about how each individual respondent vocalised his or her perceptions while instruction was being given. The second step was to identify specific types of semantic or pragmatic phenomena of interest to the researcher in relation to the target particles in phrasal verbs. In addition, these observed trends were classified into three categories: meanings of space of the particle in phrasal verbs, meanings of time of the particle in phrasal verbs, and meanings of metaphor of the particle in phrasal verbs. The third step was to highlight significant data, such as difficult or easy items to be learned. The findings from this initial stage of data analysis serve as primary results collected during the training sessions, connecting the results obtained before the training session (the questionnaire survey and the pre-test) and the immediate responses collected in in-class tasks (recorded linguistic data).

The second phase of data analysis focused on the written data collected in in-class tasks. The procedure for analysing this type of data is similar to the qualitative analysis. Firstly, all the participants' linguistic output was transcribed. Next, a code of 'S (for spatial sense)', 'T (for temporal sense)' or 'M (for metaphorical sense)' was applied to the relevant linguistic production. The analysis of six target particles ('in', 'out', 'on', 'off', 'up' and 'down') in phrasal verbs followed the same coding process. However, responses to each of the cognitive linguistic approaches were different because the design of the in-class tasks aimed to reflect the features of each. For example, participants in the Image Schemas Training Group were asked to create sentences by using the given phrasal verbs, and also to specify the function of that given phrasal verb in the sentence they made. The participants in the Categorisation Training Group were asked to construct a word map focusing on one of the given phrasal verbs covering its spatial, temporal and metaphorical meanings. The participants in the Frame Semantics Training Group were asked to write a story surrounding a target particle in the use of a set of given phrasal

verbs to reflect three meaning senses as mentioned above. Lastly, all the linguistic data were compiled and the themes in relation to six target particles in phrasal verbs were identified. Themes that emerged from the data analysis combined with their data extracts are reported in Chapters 5, 6 and 7 to reflect the attributes of each of the cognitive linguistic approaches employed in this investigation.

3.3.4 Analysis of Interview

As Dörnyei (2007) suggested, the procedures for analysing the interview data in this study followed subsequent phases consisting of transcribing, coding, categorising and reporting. To begin with, the audio-recorded data was transcribed word-for-word. A set of six open-ended question items was set out to explore EFL learners' viewpoints about the employment of the cognitive linguistic approaches in the acquisition of particles in phrasal verbs. Thus the interview question items covered the following aspects:

- the usefulness of understanding the complexity of phrasal verbs by means of disentangling the myth of combined particles
- the employment of training sessions with the cognitive linguistic approaches in the context of learning particles in phrasal verbs
- the use of three categories: the meanings of space, time and metaphor to understand particles in conjunction with phrasal verbs
- the evaluation of the three cognitive linguistic approaches adopted in this study in terms of teaching and learning particles in phrasal verbs
- the limitations of applying the cognitive linguistic approaches to learning particles in phrasal verbs
- the feasibility of the implementation of the cognitive linguistic approaches to learning particles in phrasal verbs

Next, the transcription and codes were examined, with a focus on analysing each of the interview questions. For instance, in analysing the first interview question regarding EFL learners' viewpoints about learning the multiple meanings of phrasal verbs by understanding their particles, if the interviewee found that adopting this method was useful in memorising the polysemous meanings of phrasal verbs then this response was given a code, such as 'memory retention'. The same steps in the analysis of the interview data were followed through the whole dataset.

Finally, at the reporting stage, relevant themes and findings accompanied by data extracts were compiled. In order to present viewpoints expressed by the interviewees from each of

the three training groups, the overall results of the interview data are discussed in Chapter 8.

3.4 Research Considerations

A researcher has two critical aspects to consider while collecting data: research content considerations, and practical considerations. First, in terms of research content considerations, existing accounts fail to provide a comprehensive insight into the extent to which various cognitive linguistic approaches can facilitate foreign language teaching and learning; therefore, this PhD project set out to conduct an exploratory investigation to assess how different cognitive linguistic approaches can affect Mandarin Chinese-speaking English learners' understanding of particles in phrasal verbs. However, there is no perfect research plan. As Morse and Richards (2002: 28) claim, '... if you don't know what you are likely to find, your project requires methods that will allow you to learn what the question is from the data'. To avoid this pitfall, the researcher collected not only quantitative data but also qualitative data across the whole research project. Such data would be valuable for the researcher to offer a range of detailed perspectives on which cognitive linguistic approaches can have impact in the field of EFL. When it comes to practical considerations, the researcher collected available data sources directly from participants in a visible and tangible form; this can be considered as a convenient and efficient method for qualitative-based research, because a qualitative-based study is generally recognised as a time-consuming activity. The reason for the researcher obtaining quantitative data from the test results was to compensate for the weaknesses of the qualitative-based study. As a result, the aim of collecting in-depth data should be achieved in this study.

3.4.1 Validating Strategy

The researcher collected two types of primary data sources (qualitative and quantitative data) to validate this investigation. As far as applied linguistic research is concerned, the data collected for this study is categorised in Table 3.5 below:

Table 3.5 The data sources with their collection methods and data types

No.	Data sources and data collection methods	Types of data
1	A written questionnaire with open-ended question items	Qualitative data
2	Pre-test in a pencil-and-paper form	Quantitative data Qualitative data

3	Video-recorded data of all the training sessions	Qualitative data
4	A recorded language task collected from all the training sessions in a pencil-and-paper form	Qualitative data
5	Post-test in a pencil-and-paper form	Quantitative data Qualitative data
6	Audio-recorded interviewing data	Qualitative data

In order to advance our understanding and to answer the complex matter of research questions, ‘triangulation’ is used in this research framework to help ensure research validity. Since the 1970s, the concept of ‘triangulation’ has become increasingly popular as a research method applied to social science studies. Integrating multiple data sources and theories with research methodology into one study offers a more effective approach to help confirm research findings. Erzberger and Kelle (2003) argue that if a finding can be tested via various methods, it can be viewed as more valid than one conducted using only one method. The concept of ‘triangulation’ was adopted to capture the complexities of the phenomena in the area of foreign language teaching and learning, and to further arrive at a unique and nuanced understanding of the implications for cognitive linguistic approaches and the application of this research in the EFL context.

3.4.2 Role of the Researcher

The vital role of the researcher is to bring about research findings, because he or she needs to collect the data and carry out the data analysis (Creswell, 2014). The researcher’s role in this study was being a researcher-as-teacher, as the primary investigator conducting a programme of data collection throughout the questionnaire survey, the pre-test, the training sessions, the post-test and the interview; and then to undertake the data analysis. I wish to stress the aspect of training sessions because I, as a researcher, also played a crucial role as ‘classroom teacher’ in the training sessions by giving instruction to participants concerning the concepts of particles in phrasal verbs. However, there is some possibility of bias being shown towards the research interpretations and findings. In this regard, I might argue that potential bias could arise from my experience as a fully-fledged English language teacher working in higher education institutes for more than a decade. I may have acquired the stereotypical mind-set of EFL learners. Nevertheless, such teaching experience could also have its advantages. Firstly, my teaching experience inspired me to explore the research questions in relation to the difficulty EFL learners encounter when learning particles and phrasal verbs. Secondly, classroom management experience helped me to collect the data in a smooth manner. Because the major site for collecting data lay in classroom

practice, and given that the research process always involves unexpected and complex issues, it is beneficial that as a researcher I had the experience to complete the data collection efficiently and effectively.

3.5 Research Ethics

The ethical issues relating to this research project are: (1) participants' involvement in completing a series of research activities consisting of a questionnaire survey, a pre-test, three training sessions, a post-test, and a semi-structured interview, (2) audio and video recordings, and (3) confidentiality, i.e. maintaining participants' privacy. Prior to starting this investigation, the researcher submitted a detailed research proposal for approval to Northumbria University Research Ethics and Governance team in order to comply with the University guidelines that protect participants' human rights.

In the case of the first issue, the target participants were given an information sheet accompanied by a consent form (see Appendix A and B). Both contained a full description of the purpose of this study, data collection procedures, participants' right to withdraw from the study, the confidential treatment of personal information: biodata, audio and video information, and the safety measures for data storage. After all this information had been addressed, participants were asked to sign consent forms which were then collected by the researcher. Regarding the second issue of ethics, participants were informed that during the training sessions their performance would be video-recorded. In addition, some of the interviewees would be randomly selected from three training groups. A one-to-one, semi-structured interview would be conducted with those selected participants, and the interview content would be audio-recorded. As mentioned above, the purpose of video- and audio-recordings was described in participants' information sheet and consent form. Finally, with respect to confidentiality, participants were assured that their personal information would remain anonymous and all the data collected from them would be stored safely in the University U Drive which could only be accessed by the researcher, in accordance with Northumbria University's guidelines and the Data Protection Act. Only after participants had signed the consent form did the actual data collection process begin.

3.6 Summary

Looking at the research design, this PhD project consisted of a two-phase study. The aims of the first phase of the study were: (1) to investigate Mandarin Chinese-speaking English learners' learning difficulty and learning strategies when encountering phrasal verbs; (2) to examine their current linguistic knowledge and perceptions of particles in phrasal verbs. The methods used during the first phase were a questionnaire survey and

a pre-test. The methods employed in the second phase were a series of training sessions using worksheets as teaching and learning materials, a post-test, and an interview. The training sessions accompanied by worksheets were used to explore the facilitation of the three adopted cognitive linguistic approaches (image schemas, categorisation and frame semantics) in this study. The post-test was used to assess the extent to which each of the cognitive linguistic approaches mentioned above could help improve L2 learners' understanding of particles in phrasal verbs. The interview helped to gain an in-depth understanding of the effect that the cognitive linguistic approaches might have on the process of learning particles in phrasal verbs. In order to answer the research questions orderly and to reflect the methodology used in this thesis, the organisation of the results chapters is presented according to the data collection procedures. The results of data emerging from the questionnaire and the pre-test are presented in Chapter 4, to address the research question one. The findings, collected and analysed from the video-recorded training sessions and the recorded linguistic output, of the three cognitive linguistic approaches (image schemas, categorisation, and frame semantics) adopted in this study are discussed in detail in Chapters 5, 6 and 7. Data emerging from the post-test and the interview are analysed and reported in Chapter 8 and finally the overall evaluation of the entire project is reviewed in Chapter 9.

Chapter 4 Questionnaires and Pre-tests—Findings and Discussion

Chapter Three has identified the methodologies encompassing three distinct phases of data collection that were selected to empirically explore the research propositions. This chapter reports on the results of the data-gathering phase consisting of questionnaires and pre-test papers. The data collected and information were analysed relating to the overarching research questions posed in this thesis:

1. What are the learning difficulty faced and learning strategies used by Mandarin Chinese-speaking English learners while encountering English phrasal verbs?

2. In terms of the three cognitive linguistic approaches, i.e. image schemas, categorisation, and frame semantics adopted in this study, what are the benefits and limitations that each of the cognitive linguistic approaches has in a foreign language classroom, and what facilitating role can these cognitive linguistic approaches play in improving Mandarin Chinese EFL learners' meaning construction on particles in phrasal verbs?

2A. What are the similarities and differences of meanings of English particles in phrasal verbs constructed between native English speakers and Mandarin Chinese-speaking English learners, and how can meaning construction between English and Mandarin Chinese shed light on the improvement for the acquisition of phrasal verbs?

2B. How can the overall findings be used to address the strengths and weaknesses of each of the cognitive linguistic approaches employed in this study, and how can they be used to improve their future applications?

This chapter is divided into two sections which contain the results of the questionnaire survey and the pre-test. To begin with, the results of the questionnaire survey were used to investigate Mandarin Chinese English learners' learning difficulty and learning strategies concerning phrasal verbs. Thus a detailed account of participants' opinions about learning challenges and methods of English phrasal verbs could be gathered. The second section of this chapter presents Mandarin Chinese English learners' pre-existing semantic knowledge of particles in conjunction with phrasal verbs, gathered by their completing a test paper containing two sections in the form of multiple choices and a Chinese translation of phrasal verbs. This section has been included for several reasons: it can enhance our understanding of how EFL learners construct meanings on particles in phrasal verbs before the cognitive linguistic approaches are employed; and it is used for

comparison with the post-test in order to further examine how cognitive linguistic approaches can ease the stress of learning phrasal verbs via understanding their collocated particles.

Chapters 5 to 7 present in-depth findings of each cognitive linguistic approach, i.e. image schemas, categorisation and frame semantics, focusing on the analysis of video-recorded training sessions, recorded linguistic output. The findings of the post-test and interview are discussed in general in Chapter 8. The overall evaluation of the three cognitive linguistic approaches employed in this study is to be found in Chapter 9.

4.1 Questionnaire Survey

The questionnaire survey data was obtained from participants recruited for their Mandarin Chinese-speaking L1 background, involving higher education institutes from two main data collection sites: the U.K and Taiwan. The purposes of the questionnaire survey were: (1) to investigate EFL learners' learning difficulty and learning strategies; (2) to consolidate the pre-test results providing a detailed account of how L2 learners construct meanings on particles in phrasal verbs. Details of the data collection and analysis of the questionnaire survey are shown in Section 3.2 and 3.3.

Forty-eight questionnaires, fifteen from the Image Schemas Training Group, fifteen from the Categorisation Training Group, and eighteen from the Frame Semantics Training Group were collected for this study. The participants' personal backgrounds and their English learning experience are described in Table 4.1. The first column from the left presents the reference number employed by the researcher to indicate each particular participant from the different cognitive linguistic training groups. For example, 'IS-01', 'IS' stands for the Image Schemas Training Group, 'CG' for the Categorisation Training Group; 'FS' for the Frame Semantics Training Group. The following two digits indicate a particular participant on condition of anonymity. The other columns show some demographic information they provided in the first part of the questionnaire: their nationality, educational background, total years of learning English until the present, years of learning English in an English-speaking country and their English level based on English proficiency tests they had taken, such as IELTS, TOFEL, TOEIC, etc. if available. Of the study population, 44 participants from Taiwan, 3 from Hong Kong, and 1 from Singapore, all share the same L1, i.e. Mandarin Chinese. The recruited participants all had educational backgrounds within higher educational institutes, containing 1 from the foundation course, 28 at undergraduate level, 16 from master studies, and 3 PhD students. Their years of learning English ranged from 5 to 21. Almost 40% of the recruited participants (19 out of 48) responded that they had had English learning experience gained abroad with a range of

0.3 to 3 years, except two participants who had spent a longer period of time learning English abroad: one 6 years and the other 15 years.

A particular English proficiency test mentioned in the questionnaire was GEPT (The General English Proficiency Test), developed and administered by the LTTC (Language Training and Testing Center) in Taiwan. English learners in Taiwan are usually required to take this type of test with the aim of evaluating their English proficiency levels for self-assessment, for school applications or for job interviews. The test content includes four language skills, i.e. listening, speaking, reading and writing. It is common practice for high schools, universities, private enterprises and the public sector in Taiwan to recognise the scores from GEPT. Of the 48 participants who completed the questionnaire, 41 indicated that they had taken an English proficiency test. The results of their English levels ranged from lower-intermediate to upper-intermediate, except one participant (FS-07) have reached to an advanced English level. However, taking everything into account, the selection of recruited participants fulfilled the criteria set in this study.

Table 4.1 Participants' bio-data and English learning experiences

Reference	Nationality	Educational Background	Years of Learning English	Years of Learning English in an English-Speaking Country	English Proficiency test (if available)
IS-01	Taiwan	BA	18	3	TOEIC 850/ IELTS 6.5/ GEPT Upper-intermediate
IS-02	Taiwan	PhD	10	0	IELTS 5.5
IS-03	Taiwan	PhD	20	1	IELTS 6.5
IS-04	Taiwan	PhD	11	1	IELTS 6
IS-05	Taiwan	BA	14	0	TOEIC 805
IS-06	Taiwan	BA	15	0	TOEIC 735
IS-07	Taiwan	MA	10	0	TOEIC 755
IS-08	Taiwan	MA	14	0	TOEIC 785/ GEPT Intermediate

IS-09	Taiwan	MA	21	0	TOEIC 895/ GEPT Upper- intermediate
IS-10	Taiwan	MA	10	0	GEPT Intermediate
IS-11	Taiwan	MA	13	0	TOEIC 825
IS-12	Taiwan	BA	16	0	TOEIC 690
IS-13	Taiwan	BA	10	0	n/a
IS-14	Taiwan	MSc. DDS	6	0	n/a
IS-15	Taiwan	BA	13	0	TOEIC 820
CG-01	Taiwan	Foundation	7	0.5	IELT 7
CG-02	Taiwan	MA	19	2	IELT 5.5
CG-03	Hong Kong	BA	16	0.5	IELT 6.5
CG-04	Taiwan	MA	16	1	IELT 6
CG-05	Singapore	BA	17	15	IELT 6.5
CG-06	Taiwan	BA	12	1.5	IELT 6.5
CG-07	Hong Kong	BA	18	0	TOFEL iBT 68
CG-08	Taiwan	BA	7	0	n/a
CG-09	Taiwan	BA	17	0	TOEIC 485
CG-10	Taiwan	BA	30	0	n/a
CG-11	Taiwan	BA	15	0	TOEIC 815
CG-12	Taiwan	BA	15	0	n/a
CG-13	Taiwan	BA	14	0	TOEIC 915
CG-14	Taiwan	BA	20	3	TOEIC 905
CG-15	Taiwan	BA	15	0	TOEIC 780
FS-01	Taiwan	BA	22	6	IELT 7.5
FS-02	Taiwan	MA	15	2	IELT 6
FS-03	Taiwan	MA	13	1	IELT 6.5
FS-04	Taiwan	BA	10	2.5	n/a
FS-05	Taiwan	BA	16	1	IELT 6.5
FS-06	Taiwan	MSc	13	1	IELT 6
FS-07	Hong Kong	BA	18	5	IELT 8
FS-08	Taiwan	BA	12	0.3	n/a
FS-09	Taiwan	MA	16	0	TOEIC 500
FS-10	Taiwan	MA	15	0	TOEIC 645
FS-11	Taiwan	MA	15	0	TOEIC 715

FS-12	Taiwan	MA	12	0	TOEIC 500-600
FS-13	Taiwan	MA	13	0	TOEIC 510
FS-14	Taiwan	BA	14	1	TOEIC 500-600
FS-15	Taiwan	BA	5	0	TOEIC 470
FS-16	Taiwan	BA	16	0	TOEIC 765
FS-17	Taiwan	BA	25	0	TOEIC 760
FS-18	Taiwan	BA	11	0	TOEIC 650

The questionnaire survey (see Appendix C) contains two open-ended question items. The first question attempts to find out Mandarin Chinese-speaking L2 learners' individual perceptions of difficulty in learning English phrasal verbs. The second question aims to investigate participants' learning strategies by which they came to understand English phrasal verbs. For both question items, they were encouraged to provide as many responses as possible. To sum up, these two question items were used to answer part of research question one: how Mandarin Chinese-speaking English learners construct meanings on English phrasal verbs, described in terms of their learning experience.

The qualitative data obtained from the questionnaires is similar to the interview data. Therefore, I followed the procedures that some researchers suggest to analyse the questionnaire content. According to Cohen *et al.* (2007: 368), there are four stages in the analysis of interview data:

- generating units of meaning
- classifying, categorising and ordering these units of meaning
- structuring narratives to describe the interview contents
- interpreting the interview data.

After examining the questionnaire data, similar patterns were identified and assigned codes. For example, some participants pointed out that they misused Chinese translation to understand English phrasal verbs. The use of false L1 equivalencies was considered as a type of learning difficulty in acquiring English phrasal verbs, and so it was given a code as inefficient use of language transfer skills. More learning difficulty and learning strategies in terms of acquiring phrasal verbs were found and categorised according to the above procedures. However, time restrictions applied so the participants could only produce limited responses within the short period available for data collection.

4.1.1 Learning Difficulty in English Phrasal Verbs

EFL learners are faced with the daunting task of understanding English phrasal verbs in their learning process. Kurtyka (2001) points out some common reasons for L2 learners' difficulty in understanding the meanings and functions of phrasal verbs. These include a distinct language from the L2 learners' mother tongue, multiple meanings attached to an individual phrasal verb, the intricacy of grammar, collocations of phrasal verbs, and the continued change of semantic values of phrasal verbs. To begin with, this section describes some types of difficulty that Mandarin-speaking English learners might encounter whilst learning phrasal verbs. The data were gathered from the first open-ended question item in the questionnaire survey, asking participants from across three cognitive linguistic training groups. The results suggest that Mandarin Chinese L2 learners generally experience the following seven types of learning difficulty in phrasal verbs:

- Insufficient attention to the differences of meaning construction between the uses of L1 and L2: Four out of forty-eight participants (IS-04, CG-13, CG-15, and FS-18) pointed out that they did not perform competently in the face of multiple meanings of phrasal verbs. In response to this question, some of those surveyed indicated that it is difficult to merely apply the intuitive approach (e.g. guessing the meaning) or Chinese equivalencies to understanding English phrasal verbs. For example, one participant responded below:

Participant IS-04: 'The "hidden" true meaning of phrasal verbs could be hard to guess or be explained in Chinese.'

- Misunderstanding multiple meanings of phrasal verbs: Twenty-one out of forty-eight participants responded that they were confused and frustrated by coping with the multiple meanings of phrasal verbs. There were two types of multiple meaning that they found difficult to understand. The first type was a phrasal verb involving more than one meaning (e.g. take on a job, or take passengers on a ship). The second type was that different phrasal verbs share the same meaning (e.g. put down a note or take down a note), as Participant CG-12 pointed out.
- Misapplication of grammar: Some scholars have argued that there is a difference between the 'underproduction' of phrasal verbs (Kamimoto *et al.* ,1992) and the 'avoidance' of phrasal verbs (Li, 1996) employed by L2 learners. Li's (1996) study reveals that Chinese learners of English consciously or purposely avoid using relative clauses due to their attempting to avoid making mistakes in linguistic output. A small number of those surveyed (Participant IS-02 and Participant FS-16) suggested that the syntactic complexity of phrasal verbs was one of the reasons for

explaining their learning difficulty. In my view, it is argued that underproducing and avoiding phrasal verbs either subconsciously or consciously may be the main reason for some L2 learners' difficulty in learning phrasal verbs. However, the reasons behind avoidance and underproduction of phrasal verbs are complex. Brown (1994) classified four types of linguistic avoidance: lexical avoidance, syntactic avoidance, phonological avoidance, and topic avoidance. Even so, Dagut and Laufer (1985) suggest that the construction of phrasal verb represents a unique feature of the Germanic Languages. Phrasal verbs are generally seen as a cause of lexical avoidance.

- Lack of contextual and collocational awareness of phrasal verbs: Twelve out of forty-eight participants indicated they were unable to use phrasal verbs successfully in oral or written communication due to their lack of contextual and collocational knowledge of phrasal verbs. As one of the participants states below:

Participant FS-09: '...What is the difference between phrasal verbs used in speaking and in writing?'

The above results suggest that it is problematical for L2 learners to distinguish the uses of phrasal verbs in various contexts. Due to the limits of time and space in their L2 learning environment, Mandarin-speaking learners of English have restricted opportunities to learn the extensive range of the uses of phrasal verbs, in terms of their spatial meanings, temporal meanings and metaphorical meanings. From personal knowledge and teaching experience, as far as the EFL context in Taiwan is concerned, the teaching approach to phrasal verbs is usually to provide students with a list of phrasal verbs presented in alphabetical order without any given contexts. The students are asked to learn these phrasal verbs by rote. It seems that these L2 learners suffer from lacking semantic knowledge of how to understand and use English phrasal verbs correctly in various scenarios. Of the 21 participants who responded to this type of learning difficulty in Question 1, 5 participants emphasised that it was truly difficult for a non-English native speaker to grasp the multiple meanings of phrasal verbs. For example, Participant IS-09 responded that difficulty in learning phrasal verbs could arise while learning that phrasal verb without any accompanying context, even though being given a sentence context can help L2 learners to draw inferences.

- Inadequate attention to the semantic value of particles within phrasal verbs: Nineteen out of forty-eight participants responded that they experienced difficulty in distinguishing the meanings of phrasal verbs which are based on the same main verb combined with different particles (e.g. look up', 'look upon', 'look in', 'look into', and 'look towards'). Another difficulty in misunderstanding particles was associated

with differentiating one from another. One of the participants reported his confusion over the spatial senses of 'at' and 'in' as follows:

Participant FS-07: 'Sometimes when I come across a phrasal verb that is about places with different sizes (spatial meanings of the particle) (e.g. at the airport, but in the room), it is very easy to get confused.'

- Inefficient rote learning: When it comes to rote learning, the results suggested that these L2 learners acquire phrasal verbs by memorising the various definitions of one particular phrasal verb either in English or in Mandarin Chinese. Fifteen out of forty-eight participants pointed out that they had learned phrasal verbs by rote, that is, they only learned phrasal verbs by repeating them from memory, even though they did not understand them. They further described the consequences of rote learning such as 'hard to remember', 'hard to memorise', or 'easy to forget' in their responses. Some extracts associated with the limited memory capacity was identified as one the main reasons for inefficient rote learning, and they are shown below:

Participant IS-01: 'The educational system in Taiwan where I spent most of my time learning English is like pushing every student to "memorise" in terms of vocabularies, phrases and even phrasal verbs, as one has limited memory and space for memorising, I find it pretty dull and old fashioned, which makes it even harder for me to understand.'

Participant IS-09: '...I will easily forget some of them just because of my bad memory.'

- Avoidance of using phrasal verbs: There is a special case reported by Participant IS-05: 'the avoidance of using phrasal verbs due to my unfamiliarity with them.' Based on this data extract, I categorised 'avoidance of using phrasal verbs' under the heading of learning difficulty.

Having reported the results emerging from the first question item in the questionnaire survey, in terms of learning difficulty, I will now move on to discuss learning strategies.

4.1.2 Learning Strategies for English Phrasal Verbs

This section describes the results of the second question in the questionnaire survey focusing on learning strategies used by Mandarin Chinese-speaking English learners

while acquiring phrasal verbs. Together the results suggest seven types of strategy that L2 learners adopt in the process of learning phrasal verbs: (1) rote memorisation, (2) learning drills, (3) gestures or body language, (4) audio or visual learning aids, (5) contexts or sample sentences, (6) dictionaries or online resources, and (7) the application of phrasal verbs to oral or written communication.

- Rote memorisation: Thirty-two out of forty-eight participants indicated they used rote memorisation to learn phrasal verbs, and the findings show that it is the most common learning strategy they employed. Participant CG-02, CG-11, FS-01, FS-10, FS-14, FS-15, and FS-17 responded that from primary education they had learned phrasal verbs by memorising a list of those verbs arranged in alphabetical order. This they considered to be a dull and boring learning process. Participant FS-16 was aware that she needed to equip herself with a broader knowledge of phrasal verbs in terms of more effective learning and better understanding; however, she had failed to do so, and as she put it: '...The more I learn, the more I forget.' Other responses to this question included Participant IS-05 and FS-07 who explained the reason they memorised phrasal verbs was for learning-for-the-test purposes, rather than developing their learning autonomy. It might be argued that the motivation for learning phrasal verbs by rote was low. Participant FS-07 added that the content of the test was unhelpful and problematic. He usually took a test in the form of a fill-in-the-blank for phrasal verbs in language class, rather than putting the practical application of phrasal verbs to use. Overall, rote learning was regarded as an inefficient learning strategy. In contrast to earlier findings, rote learning was considered as a type of learning difficulty; however, some participants still adopted it as a learning strategy. This rather inconsistent result may be explained by the fact that learning English phrasal verbs is a thorny issue for L2 learners, and it is difficult for them to find a more helpful approach to employ.
- Learning drills: 13 responses to this question indicated that repetitive drilling was practised as a type of learning strategy. They combined multiple approaches such as taking notes, doing exercises from the textbook or practising the uses of phrasal verbs with others. Most of them agreed that this type of strategy helped enhance their retention of what they had learned.
- Gestures or body language: Only one out of forty-eight participant (IS-01) stated that he would use gestures or body language as an aid to learning phrasal verbs. Cognitive linguists argue that embodied cognition performs an important function to help people understand the world around us; for example, Lakoff (1987) refers it as 'image schema ICM'. Gullberg's (2008) study suggests that the use of gesture exerts an effect on L2 learning and communication. In terms of language teaching, TPR (total physical response) is considered as a valuable method to learn idiomatic

expressions, e.g. phrasal verbs, because it can fill the gap and help language learners to link abstract concepts to physical experience (Richards & Rodgers, 2014). More research findings concerning the cognitive linguistic approach of image schemas will be discussed in Chapter 5.

- Audio or visual learning aids: Twenty-two out of forty-eight participants reported that they used audio or visual input to assist their learning of phrasal verbs. A range of learning materials was used such as radio programmes, music, TV programmes and movies. The results suggest that these learners benefitted from longer memory retention of phrasal verbs than rote memorisation. According to Paivio (1970) and Stevick (1996: 48-49), they promote a dual code theory in education which corroborates the usefulness of employing visualisation: an existing memory system comprising verbal and visual image. For example, a concrete 'chair' can evoke a person's verbal and visual image. For this reason, it can be argued that combining visual input such as pictures, diagrams, drawing, or animated motion pictures with verbal production of phrasal verbs can exert positive effects on facilitating L2 learners' understanding and memory retention of the complex concepts of phrasal verbs.
- Contexts or sample sentences: Approximately half of those who answered Question 2 reported that they learned phrasal verbs by engaging in various contexts in use. For example, Participant IS-08 and IS-09 described below how they learn phrasal verbs by using contextual information:

Participant IS-08: 'When I was a senior high school student, I just memorised all the meanings of phrasal verbs. However, it was not a good way to learn. Therefore, I started to use a sentence to memorise the phrasal verbs. Now, when I teach my students, I will think up some situations to explain the particles. Maybe it can help them to memorise.'

Participant IS-09: 'I'd like to put these phrasal verbs into a context; for instance, look them up in a dictionary to make sure how these phrasal verbs are correctly used in sentences. Moreover, some of them are sometimes quite confusing so I will try to group them to distinguish their different usage. In this way, I may pick them up better and easily.'

Considering all the above, the results suggested that it is encouraging for learners to use contextual clues wisely in foreign language acquisition.

- Dictionaries or online resources: Of the overall 48 participants who responded to this question, 7 reported that they would consult dictionaries or online resources to facilitate their learning of phrasal verbs. Drawing attention to advances in new

technology, Participant FS-17 pointed out that she had had experience of using a software application, 'HiNative', to ask about the different uses for 'come up' and 'come up with'. There are some strengths and weaknesses in utilising online resources. New technology can provide L2 learners with a considerable number of examples and easy-access methods for language learning, while there exists the risk that some of the linguistic knowledge posted online may not be accurate because of lack of verification.

- The application of phrasal verbs to oral or written communication: Ten out of forty-eight participants pointed out they would practise how to use phrasal verbs in a spoken or written form as a type of learning strategy. This following data extract suggested that the participant was highly motivated in terms of his individual learning needs that drove him to foster learning autonomy.

Participant FS-07: 'I went to high school in the U.K. I learned English from daily conversation with native English speakers. In the UK school, English tests are not like those in Asia such as fill-in-the-blank-type questions. I had to write essays. I had to work hard because writing is difficult.'

Returning briefly to the results of this section, they may have important implications for EFL teachers seeking to develop more fit-for-purpose learning strategies for L2 learners to adopt. Turning now to the discussion of the results of the pre-test.

4.2 Pre-test Results of Image Schemas Training Group, Categorisation Training Group, and Frame Semantics Training Group

The results of the pre-test papers obtained from the recruited participants was used: (1) to investigate the participants' entry linguistic knowledge of particles within phrasal verbs, (2) to compare with the results of the post-test to examine to what extent L2 learners can improve their understanding of phrasal verbs and further (3) to complement the results of the questionnaire survey to help account for the challenges that Mandarin Chinese English learners currently experience. The details of data collection of the pre-test papers are shown in Section 3.2; the procedure of analysis is described in Section 3.3.

4.2.1 Quantitative Results

The results obtained from the preliminary analysis of descriptive statistics for the pre-test are shown in Table 4.2 below. It is apparent from this table that the Categorisation Training Group scored higher points in Test Section 1 ($M = 13.20$, $SD = 3.47$) and Test Section 2 ($M = 18.60$, $SD = 5.30$) of the pre-test than the Image Schemas Training Group

and the Frame Semantics Training Group. However, there was a difference of the mean scores between Test Section 1 and Test Section 2. The scores of correct answers in both Test Section 1 and 2 were further calculated, because it helped the researcher to eradicate the influence of guessing. The table below illustrates that the Categorisation Training Group also gained higher scores ($M = 11.80$, $SD = 4.42$) than the Image Schemas Training Group and the Frame Semantics Training Group. In summary, the Categorisation Training Group scored higher points than the Image Schemas Training Group and the Frame Semantics Training Group concerning Test Section 1, Test Section 2, and correct answers in both the test sections.

Table 4.2 Descriptive statistics for pre-test scores in three training groups based on the cognitive linguistic approaches

Correct answers obtained in the test section	The training group					
	<u>Image schemas</u>		<u>Categorisation</u>		<u>Frame semantics</u>	
	(n = 15)		(n = 15)		(n = 18)	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Test Section 1: Particle	11.80	4.20	13.20	3.47	11.89	2.78
Test Section 2: Chinese translation of the phrasal verb	16.80	4.87	18.60	5.30	17.67	4.79
Both in Test Section 1 & 2	10.47	3.96	11.80	4.42	10.56	3.63

Note. M = mean score. SD = standard deviation.

It can be argued that descriptive statistics are used to give an account of general tendencies and the overall spread of mean scores. In order to shed more light on how the participants in each of the training groups constructed meanings on phrasal verbs, responding to the test sections mentioned above between the pre-test and the post-test, further statistical measures: (1) t-tests for analysing the relationship between the pre-test and the post-test in each training group were used (2) ANOVA for analysing and comparing the post-test results amongst the three training groups were adopted; (3) the accuracy rate for individual question items in the pre- and post-test was summarised. Further discussion is presented in the subsequent Section 8.1 and 8.2.

Having reported the initial descriptive statistics for the pre-test in three training groups, what follows is a detailed account of six target particles in phrasal verbs in the pre-test.

4.2.2 Particles in Phrasal Verbs

Much uncertainty still exists about the scoring gap for choosing the correct particle along with or without the equivalent Chinese translation of combined phrasal verbs. This section set out with the aim of examining how participants constructed meanings on six target particles in phrasal verbs. The analysis of data emerged from the pre-test papers (Appendix D). The key aspects of this section are reported as follows: 'in', 'out', 'on', 'off', 'up' and 'down' in phrasal verbs. Each of the aspects is discussed in two broad themes; they are the similar and unique meaning construction on phrasal verbs between English and Mandarin Chinese speakers as follows:

- 'In' in phrasal verbs: When it comes to the similar meaning construction between English and Mandarin Chinese, three question items in relation to phrasal verbs containing 'get in', 'put in', and 'take in' were tested. The majority of those who responded incorrectly to these three items provided the particle 'up' in the pre-test. One possible reason could be the lack of L2 encyclopaedic knowledge; for example, some participants were unaware that 'the Conservatives' is a political party in the UK context, and the political party can be considered as a container schema. Another factor could be the lack of collocational awareness since 'put in time' is an idiomatic expression commonly used in English. However, language transfer was found to have a positive effect on the item 'take in', as the majority of the those who responded correctly to this item gave an equivalent Chinese '聽進去' (literal meaning: *listen in*) to reflect their understanding of this phrasal verb in use. According to Lu & Sun (2017), their study of applying cognitive linguistic approaches to teaching phrasal verbs confirms that it is necessary to use an appropriate L1 transfer to assist an innovative teaching approach in EFL. Regarding the unique patterns of meaning construction on phrasal verbs, two question items ('come in' and 'go in') were tested. For the phrasal verb 'come in', the particle 'up' was identified as the most common error in the pre-test. This may be because Mandarin Chinese speakers use 'up' to describe the way that waves come into the shoreline, whereas English speakers consider the shoreline as the boundary of a container. For the phrasal verb 'go in', this question was reported as one of the most difficult to answer in the pre-test, with only 8 out of 48 participants provided both correct answers regarding the particle with its Chinese translation. In my view, one possible factor could be that the participants construct the direction between 'in' and 'out' differently from English users.

- 'Out' in phrasal verbs: With respect to similar construction, the phrasal verb 'go out' and 'get out' were tested. In response to the item relating to 'get out', the majority of those responded correctly, due to the fact that the participants were familiar with the use of this phrasal verb in a given sentence context. For the phrasal verb 'go out', some confusion over the usage between 'out' and 'off' was identified. It is likely that the participants are unaware of the contextual clues provided in the given sentence. As far as the aspect of unique meaning construction is concerned, three phrasal verbs encompassing 'come out', 'put out', and 'take out' were tested. Concerning the phrasal verb 'come out', 14 out of 48 participants provided an incorrect use of 'up' in this item. The tendency might suggest that the participants fail to consider 'the truth' that is hidden in a container, and the truth has to come out to be known. Another reason for explaining the error made in the phrasal verb 'put out' may be that the participants misused the language transfer. For example, the Chinese character '滅' has multiple meanings equivalent to English particle 'off' and 'down' depending on the contexts in use. The results showed that an equivalent Chinese translation of 'put out the fire' as '滅火' was commonly found in the pre-test. Therefore, the common errors identified responding to 'out' were the particles 'off' and 'down'. The final case was relevant to the phrasal verb 'take out'. None of the participants provided correct answers in both the test sections: particle and Chinese translation of the phrasal verb. This tendency might suggest that it is difficult to acquire the meaning of unfamiliar phrasal verbs if L2 learners are not equipped with an adequate level of L2 encyclopaedic knowledge and collocational awareness.
- 'On' in phrasal verbs: The most surprising aspect of the data is in the low rate of accuracy responding to 5 question items of 'on' in phrasal verbs, whether the phrasal verb was categorised as a type of similar meaning construction or not. Moreover, the two common incorrect particles 'up' and 'in' were identified. The reason for this is not clear from the data, but it may have something to do with the lack of adequate L2 contextual knowledge and unfamiliarity with vocabulary in breadth and depth. It is worth noting one case in relation to the similar meaning construction between English and Mandarin Chinese in the data analysis. For instance, when participants were asked to give a chosen particle responding to the question item: 'Don't take__more responsibilities than you can handle.', 12 out of 48 participants provided the incorrect particle with the correct Chinese translation gave the particle 'up'. It may be that these participants confused the multiple meanings of the Chinese character '上' as it contains the equivalent meanings of English particle 'up' and 'on', even though the participants understood the given

sentence. This result has important implication for EFL teachers and learners for raising awareness of adopting false equivalencies. Overall, the English particle 'on' is found in this study to be one of the most confusing items for L2 learners to conceptualise.

- 'Off' in phrasal verbs: Two phrasal verbs—'come off' and 'take off' were used as question items reflecting the similar meaning construction. 27 out of 48 participants provided the correct answers in both test sections (the particle and Chinese translation of the combined phrasal verb) for 'come off' and 32 out of 48 participants for 'take off', respectively. These results might suggest the participants are familiar with the usage of the above phrasal verbs. By contrast, three phrasal verbs: 'go off', 'put off', and 'get off' were tested, in terms of the unique meaning construction between English and Mandarin Chinese. The majority of answers responding to these phrasal verbs were incorrect. A possible explanation for this might be that the first language transfer has a negative effect on meaning construction. For example, 'on' was misused when responding to the question: 'If an explosive device or a gun goes off, it explodes or fires.' as Mandarin Chinese speakers would use 'on' to describe the meaning of producing heat or noise. Another possible explanation is that the L2 learners were lacking in L2 contextual knowledge and unaware of collocations. For instance, the question item: 'He is likely to get off with a small fine.' was considered to be one of the most difficult item to complete, since the participants reported that they rarely encountered that usage in their process of learning phrasal verbs. One of the implications that emerges from these findings is for EFL teachers to provide explicit or implicit opportunities for learners to acquire phrasal verbs.
- 'Up' in phrasal verbs: Concerning the similar meaning construction on 'up' in phrasal verbs, three phrasal verbs, consisting of 'go up', 'get up', and 'put up' were tested. The overall rate of accuracy at providing the correct particle with the correct Chinese translation of the combined phrasal verb was encouraging. One possible factor could be the positive effect of language transfer (Lu & Sun, 2017). The Chinese equivalencies such as '上' and '起' were identified in the data to reflect the meanings of 'up' in the phrasal verbs. On the contrary, there was a misunderstanding of 'up' and 'on' found in the question: 'The superintendent put up a notice on the door advising residents to conserve water.' In the data analysis, approximately one-third of the participants used 'on' as their answer to this question. It may be that these participants consider the meaning of 'on' by focusing on the physical contact between the notice and the door. When it comes to the unique meaning construction in relation to 'up' in phrasal verbs, two phrasal verbs such as 'come up', and 'take up' were tested. An interesting case of 'come up'

arose in the item: 'I don't care how well you planned, something always comes up that you didn't think of.' This suggests that the participants tended to misunderstand the difference in usage between 'up' and 'on'. As discussed above, language transfer may have a negative effect by causing L2 learners to misapply the false equivalence. Another reason could be that 'up' and 'on' share a similar concept: 'becoming visible and known' and this concept is referred to in Rudzka-Ostyn's (2003) textbook. For L2 learners, the semantic networks of one particular particle in phrasal verbs have already been difficult to deal with. Comparing the similar and/ or different uses between two particles in phrasal verbs would be another challenge faced by EFL learners. The next example of 'take up' in the question: 'The aim was not to take up valuable time with the usual boring pictures.' illustrates that it was a difficult item to answer; as a consequence, only 5 out of all the participants provided correct answers both in the test sections of particle and Chinese translation of the phrasal verb. This result may be explained by the fact that the participants lack understanding of the temporal sense of 'up' in the phrasal verb.

- 'Down' in phrasal verbs: Interestingly, the accuracy rate was encouraging for the four tested phrasal verbs, comprising 'come down' (19 out of 48 participants), 'get down' (37 out of 48 participants), 'put down' (16 out of 48 participants) and 'take down' (24 out of 48 participants), in the category of similar meaning construction. There are several possible explanations for these results. First, the results show that the participants were aware of spatial concept of 'down' as 'a downward movement' in the question item: 'By the time I walked to the pub, the whole heavens opened up and the rain started to come down.' Second, in response to the question item: 'At times when my work gets me down, I like to fantasize about being a farmer.', the findings suggest that the participants adopt a universal conceptual metaphor (Lakoff & Johnson, 2003) - UNHAPPY IS DOWN - to reflect their understanding of 'down' as a negative emotion. Third, the results revealed that the participants used a Chinese character '除' that is equivalent to conceptualise 'down' as 'reaching to the lowest limit' in two questions items: '...put down the rebellion' and '...take all these buildings down...' With respect to the unique meaning construction on 'down' in phrasal verbs, 'go down' was the only item to be tested. The results show 19 out of 48 participants provided correct answers in both test sections (particle and Chinese translation). Analysis of the Chinese translation of 'go down' in the question: 'If a computer goes down, it stops functioning temporarily.' further indicated that some of the participants provided '當機' as an equivalent meaning to the phrasal verb 'go down'. Interestingly, the

Chinese character ‘當 (pronounced as *dang*)’ is a borrowed word from the English pronunciation of ‘down’. This finding has an important implication for EFL teachers seeking to develop a mnemonic method to enhance learners’ retention while introducing unfamiliar or difficult phrasal verbs.

So far this chapter has focused on reporting the results of the questionnaire survey and the pre-test that were the dataset collected before the training sessions based on the cognitive linguistic approaches were employed.

4.3 Summary

This chapter systematically reviews the data to answer the research question one and part of the research question two proposed in this study, aiming to explore how Mandarin Chinese-speaking English learners construct meanings on particles in phrasal verbs, and to assess to what extent three adopted cognitive linguistic approaches can facilitate L2 learners’ understanding. In the questionnaire survey, the results revealed seven types of difficulty combined with seven types of strategy for learning English phrasal verbs. It is apparent from the dataset that Mandarin Chinese English learners struggle to solve this difficult issue of understanding phrasal verbs; however, their learning strategies seem inadequate and ineffective. The results of the pre-test only demonstrated the general tendency of scores and which did not reveal rich findings. In the subsequent chapters, more findings of employing the three cognitive linguistic approaches will be reported and discussed respectively in Chapter 5, 6, and 7. The results with reference to the post-test, a comparison of pre and post-test and the interview are reviewed in Chapter 8.

Chapter 5 The Use of Cognitive Linguistic Approach of Image Schemas—Findings and Discussion

This chapter reports in greater detail the results of the cognitive linguistic approach of image schemas and is divided into four main sections, each of which presents the results relating to research question two. It begins with the data from three types of training session, and then goes on to discussing the preliminary findings of employing the cognitive linguistic approach of image schemas to teaching and learning particles in phrasal verbs. The findings presented in this chapter are further used to assess the impact of the three major cognitive linguistic approaches used in this study on the EFL context, and which is evaluated in Chapter 9.

Fifteen participants were recruited in the Image Schemas Training Group: 6 undergraduates and 9 postgraduates in UK or Taiwanese higher education institutes, and they all voluntarily participated in this study. All of them have a minimum of six-year English learning experience and share the same L1, i.e. Mandarin Chinese. The details of participants' personal backgrounds can be seen in Table 4.1 (p.69).

Two data sources: (1) the video recordings and (2) the recorded linguistic output of three training sessions with the cognitive linguistic approach of image schemas were collected. Owing to considerations of reliability and validity, I followed the same procedures to collect and analyse the data across the three cognitive linguistic approaches adopted in this investigation. Details of how the data collection and analysis were conducted are shown in Section 3.2. and 3.3.

Three main topics of particles in phrasal verbs were taught in the training sessions, and they were: 'in-out in phrasal verbs', 'on-off in phrasal verbs', and 'up-down in phrasal verbs'. Each training session covered only one topic. The same instruction procedures were conducted in each training session in a way that followed the arrangement of the worksheet content (see Appendix E, H, and K) and that included four sections as below:

- a list of 10 target phrasal verbs
- two visual representations of two target particles
- a table of sample sentences containing spatial, temporal, and metaphorical meaning senses
- an in-class task designed to ask participants to write a sentence by employing a set of given phrasal verbs

To start with the first training sessions, the researcher introduced the particles ‘in’ and ‘out’ by showing two containers: one was with an inward arrow, the other with an outward arrow, as illustrated below in Figure 5.1, to represent the spatial meanings of these two target particles. Following this, a table of three meaning senses was discussed focusing on identifying the function of the container in each given sentence. If the participants had difficulty in making sense of the container schemas metaphorically, the researcher would have helped them infer from the concrete meaning senses. After discussing the three meaning senses of the particles in phrasal verbs, participants in the Image Schemas Training Group were asked to complete the in-class task in pair work or group work. The in-class task involved two sections, one section of making sentences by using ten target phrasal verbs and the other section of specifying the function of the container in each given sentence which the participants produced. Each training session lasted approximately one hour and it was recorded on video in an effort to collect data as fully as possible, as suggested by Dörnyei (2007) and Goldman *et al* (2007). Moreover, a recorded linguistic data of the in-class task was also collected when the training session was completed.

Sections 5.1 to 5.3 report how the cognitive linguistic approach of image schemas can be applied to teaching and learning particles in phrasal verbs. The data was mainly gathered from the three training sessions, in that each considered a given topic focusing on an opposite pair of particles in the phrasal verbs. Accordingly, the results of the three training sessions consisting of (1) teaching and learning particles in phrasal verbs, and (2) linguistic output of the particles in phrasal verbs, are presented and discussed in turn to reflect their focus.

5.1 Training Session One: In-Out in Phrasal Verbs

This section reports how the Image Schemas Training Group constructed meanings on ‘in’ and ‘out’ in phrasal verbs by examining how they interacted with Worksheet 1 (see Appendix E), provided in the training session and their real-time linguistic output in response to the in-class task. The Image Schemas Training Group was given two visual images to introduce the conceptual meanings of the particles ‘in’ and ‘out’ in phrasal verbs, as can be seen in Figure 5.1 (see Appendix E).



Figure 5.1 Semantic images of 'in' and 'out'

5.1.1 Teaching and Learning 'In' in Phrasal Verbs

Some sample sentences where the participants had difficulty in understanding 'in' in phrasal verbs were found, and which were associated with three meanings senses: space, time and metaphor. In the aspect of the spatial meanings of 'in', most of the participants responded that it was difficult to conceptualise 'the ocean' as the container and 'the shoreline' as the boundary of the container in the sample sentence: 'Big waves will come in for some time after the storm.' The difficulty in understanding this type of container would seem to stem from different L1 construal pattern, because in Mandarin Chinese 'up' is used to describe approaching waves causing the sea level to go up; whereas in English, the use of 'in' is to express the container schema, showing an inward movement. Another example in relation to the spatial particle 'in' was found in the sample sentence: 'The sun went in, and the breeze became cold.' When the participants were asked what container was embedded in this sentence context, most of them responded that the container was 'a room' or 'a house'. In order to help the participants to identify the accurate container schema, the researcher (who also acted as instructor) further indicated that this would not make any sense, since the effect caused by the sun's movement was a cold breeze. After a while, Participant IS-05 responded that the container was 'the clouds'. A possible explanation is that different L1 construal patterns contribute to the confusion about meanings. While describing the cloudy weather, Mandarin Chinese users consider 'the clouds' to be moving objects to cover the sun; whereas, English speakers describe the sun as a moving object that goes into the clouds. These findings may help EFL teachers to understand the unique meaning construction between English and Mandarin Chinese, and further to raise awareness of the benefit of adopting the cognitive linguistic approach of image schemas to identify L2 learners' potential difficulty.

In spite of the unique meaning construction between English and Mandarin Chinese, a similar construal pattern was found in the data analysis. When the Image Schemas Training Group was asked to identify the container embedded in the sample sentence: 'They will certainly need to take in plenty of liquid.', the majority of those responded that 'the human body' was the container. Participant IS-03 added that she could understand 'take in' by making the analogy of viewing the human body as a container. In other words,

it would be useful for L2 learners to employ similar meaning construction between the two languages to grasp the meaning of phrasal verbs.

With respect to the temporal meaning of the phrasal verb with 'in' in the sample sentence: 'Wade was going to be paid a salary, instead of by the hour, whether he put in forty hours or not.', the overall response to this sentence indicated this was a difficult item to understand. Consequently, a universal conceptual metaphor TIME IS MONEY (Lakoff & Johnson, 1980; 2003) was used to marshal more of the participants' meaning construction on containers temporally. Subsequently, the majority of the participants who responded to this sample sentence felt that TIME IS MONEY helped them to better understand this given sentence. That is to say, raising metaphorical awareness by employing a similar concept between two cultures could have a positive effect on helping L2 learners to grasp the abstract meanings of phrasal verbs.

As far as understanding the metaphorical meanings of 'in' in phrasal verbs is concerned, one example: 'I explained the procedure to the new mechanic many times, but it didn't go in.' was found to be difficult to understand. The participants were asked to detect the abstract container embedded in the above sentence by employing the concepts of image schemas to understand the complexity of metaphors. In general, the majority of the participants were able not only to identify that 'the human brain' was regarded as a container in the given sentence, but also to point out that the function of a human brain is for 'understanding and thinking'. It seems that the theory of image schemas can have a positive effect on providing Mandarin-speaking L2 learners with visual ideas to highlight the metaphorical concept in such a way that it can be understood with ease.

It can be argued that some container concepts are used similarly between English and Mandarin Chinese. For instance, the example of 'get in' in the sentence: 'We would have come straight here, except our flight got in too late.' All the participants responded without hesitation that the airport was viewed as the container, because it was common knowledge that human beings experience the physical world around us. Another example showed that using an L1 equivalent translation was also useful for L2 learners to grasp an abstract concept. When participants were required to translate 'take in' from the sample: 'Ethiopia's large territorial area takes in a population of more than 40 million people.' into Mandarin Chinese, over half of the participants translated 'take in' as '容納 (meaning: to contain)', which reflects the same meaning as in English. It is therefore be assumed that an equivalent Chinese translation can assist L2 learners' understanding of phrasal verbs to some extent.

5.1.2 Linguistic Output of 'In' in Phrasal Verbs

Table 5.1 shows an overview of the results obtained from the Image Schemas Training Group's language task in relation to using 'in' in phrasal verbs. The results presents some significant data.

Table 5.1 In-class task of using 'in' in phrasal verbs to write sentences

Meaning Sense	Participant's Reference	Samples
Space	IS-01	• Get in(to) a room.
	IS-03	• Put the ingredients in the pan.
	IS-04	• Get in your office on time.
	IS-05/IS-06	• Why don't you come in?
	IS-07/IS-10/IS-11	• May I come in?
	IS-12/IS-15	• The customer come in to buy shoes. • We must get ?in the plane on time.
	IS-13/IS-14	• The air smelled good because the rain was going ?in.
Time	IS-08/IS-09	• The time you put in for your work will treat you well in return.
Metaphor	IS-03	• There is a lot to take in.
	IS-05/IS-06	• This bus can take in around 30 people.
	IS-07/IS-10/IS-11	• I wanted to get in the project group, but failed. • He'll put in some comments in my project.
	IS-08/IS-09	• When I tried to hum the song, the melody just came in.
	IS-13/IS-14	• I got in trouble because of running out of time.

Note. ? Incorrect usage

Firstly, in terms of the spatial meanings found in the data, common space such as a room or an office was elicited. Additionally, daily activities were identified. For instance, Participant IS-03 indicated the procedures of cooking and Participants IS-12 and IS-15 used a container concept to express shopping in a store. Secondly, only two participants (IS-08 and IS-09) indicated the temporal usage of 'in'. This phenomenon may result from L2 learners' rare encounters with the temporal usage of 'in' in phrasal verbs. Thirdly, the majority of data found in response to the metaphorical sense were only the replication of sample sentences provided in the worksheet. This can be attributed to the limited amount of time available in the training session; consequently, the participants did not have

sufficient time to explore the in-depth understandings of metaphorical concepts. In order to compensate for this weakness, participants were encouraged to collaborate more with others in the subsequent training sessions.

Interestingly, two incorrect sample sentences were found in the data. The results showed that the participants were confused about the usage between 'in' and 'on' and between 'in' and 'down'. The relevant data extracts are presented below:

- Participant IS-12/ IS-15: 'We must get ?in the plane on time. (the suggested correct usage: 'on')'
- Participant IS-13/ IS-14: 'The air smelled good because the rain was going ?in. (the suggested correct usage: 'down')'

The correct usage of the phrasal verbs suggested above was based on the information consulted by a native English speaker with 20-years of experience teaching English, Rudzka-Ostyn's (2003) textbook, *Word Power: Phrasal Verbs and Compounds—A Cognitive Approach*, and two online dictionaries: *The Free Dictionary* (<https://www.thefreedictionary.com>) and *Collins Free Online Dictionary* (<https://www.collinsdictionary.com>). These findings raise intriguing questions regarding the complex nature and extent of English phrasal verbs that make them difficult for L2 learners to deal with in the short term.

5.1.3 Teaching and Learning 'Out' in Phrasal Verbs

A visual image of 'out', shown in Figure 5.1 above, was used to instruct the Image Schemas Training Group how to learn 'out' in phrasal verbs. In the case of the spatial meanings of 'out' in phrasal verbs, two themes emerged from the data. The first theme was to do with the application of two opposing particles to understanding the container schema. IS-01 reported that 'the shoreline' was viewed as the boundary of the container in the sample sentence: 'The tide was going out.' He added that this container concept was the same as the one used in the sample sentence: 'Big waves will come in for some time after the storm.' These results suggest that L2 learners might be able to use 'in' and 'out' by analogy with inward and outward movements made by the waves or the tides.

The second theme was concerned with the facilitating role of the particle in terms of understanding phrasal verbs. The relevant sample sentences were associated with 'put out' (e.g. 'Don't forget to put out the garbage.') and 'take out' (e.g. 'Please take the trash out.'). The majority of the participants felt that understanding 'out' helped them to conceptualise these two phrasal verbs, despite the different main verbs employed. This

finding broadly supports the work of other studies in the area using particles to understand phrasal verbs (Ansari, 2016; Lu & Sun, 2017; Yasuda, 2010).

When it comes to meaning construction on temporal meanings of 'out' in phrasal verbs, very little data relating to 5 target phrasal verbs, i.e. 'come out', 'go out', 'get out', 'put out', and 'take out' was found in the dictionaries; for this reason, sample sentences associated with semantic time were not provided in the worksheet (see Appendix E). However, when the Image Schemas Training Group was asked to provide examples reflecting the temporal sense of 'out', some of the participants produced an example (e.g. 'running out of time') to express their perception of time as a container.

Turning now to the results of how learners come to understand 'out' in phrasal verbs metaphorically, there were three interesting findings. The first finding was to do with the example: 'You do not go out to injure opponents.' The majority of the participants responded that the meaning of 'go out' was difficult to understand. However, after a small discussion of this particular case, Participants IS-03 and IS-05 provided an equivalent Chinese translation (費心勞力: *making an effort*) of 'go out' in response to its metaphorical sense. It seems that employing an L1 translation can, to some extent, exert a positive effect on assisting EFL learners' understanding of the unique meaning construction between English and Mandarin. It may also help to improve learners' memory retention of difficult items by using an equivalency. The second finding was to do with the sample sentence: 'He crossed to the bedside table and put out the light.' Participant IS-04 explained the reason for understanding 'put out' that 'Putting the light out of the room can make the room become dark, so "put out" means "turn off the light".' A possible explanation might be that the participant was able to use his metalinguistic knowledge to process in-depth information of this phrasal verb by projecting the spatial concept onto the metaphorical meaning. The third finding was relating to the phrasal verb 'take out'. When respondents were asked to indicate what container concept was embedded in the sample sentence: 'Rachel took me out for lunch', Participant IS-05 responded that the social relationship was considered as a container, and it shared the similar container as to 'ask someone out'. These results were encouraging in that some L2 learners of English may be able to generalise meanings from what they had been taught.

5.1.4 Linguistic Output of 'Out' in Phrasal Verbs

Table 5.2 below illustrates some selected sentences made by the Image Schemas Training Group. In analysing the recorded linguistic data, two themes emerged and these

are discussed in the following. The themes were: the spatial and metaphorical meanings of ‘out’ in phrasal verbs.

Table 5.2 In-class of using ‘out’ in phrasal verbs to write sentences

Meaning Sense	Participant's Reference	Samples
Space	IS-04	<ul style="list-style-type: none"> Get out of the room.
	IS-05/IS-06	<ul style="list-style-type: none"> Why don't you come out of the room?
	IS-12/IS-15	<ul style="list-style-type: none"> They went out for lunch. Please get the puppy out, so I can have a good night sleep.
	IS-13/IS-14	<ul style="list-style-type: none"> The sun went out and we felt warmer.
Metaphor	IS-01	<ul style="list-style-type: none"> Coming out of the closet.
	IS-03	<ul style="list-style-type: none"> Go out for a date.
	IS-05/IS-06	<ul style="list-style-type: none"> Get out of my mind! He was taken out by the local killer.
	IS-07/IS-10/IS-11	<ul style="list-style-type: none"> I tried to get out supporting my friends. The firefighters put out the fire in time.
	IS-08/IS-09	<ul style="list-style-type: none"> After brainstorming for a few hours, the ideas came out at the end. After making birthday wishes, they put out the candles.
	IS-12/IS-15	<ul style="list-style-type: none"> She got out of her family to gain more freedom.
	IS-13/IS-14	<ul style="list-style-type: none"> Sally was too emotional. We tried to get her out of trouble.

The majority were in favour of using enclosed space, such as a room, an office or a house. Interestingly, since they had learned the container concepts that could be used to describe atmospheric conditions, for example, the movement of the sun, two participants (IS-13 and IS-14) used ‘the clouds’ as a container concept to depict fair weather conditions.

In the case of the metaphorical usage of ‘out’ in phrasal verbs, Participant IS-01 produced a sentence using the idiom ‘coming out of the closet’ to abstractly describe sexual orientation. According to the meaning categories provided in Rudzka-Ostyn’s (2003, 18-31) textbook, five types of container schemas emerged from the data and they included the following categories:

- Eat or inviting to eat away from home (e.g. 'They went out for lunch.')
- Sets, groups are containers (e.g. 'She got out of her family to gain more freedom.')
- Bodies, minds, mouths are viewed as containers (e.g. 'After brainstorming for a few hours, the ideas came out at the end.')
- States/ situations are containers (e.g. 'Sally was too emotional. We tried to get her out of trouble.')
- Non-existence, ignorance, invisibility also function as containers (e.g. 'He was taken out by the local killer.')

To sum up, these results suggest that L2 learners were capable to adopt the container concepts to elicit a wide range of responses in relation to metaphorical thinking. A possible explanation for this might be that the training session using the cognitive linguistic approach of image schemas has had a positive effect on L2 learners' linguistic production but participants might know some of these phrasal verbs previously.

5.2 Training Session Two: On-Off in Phrasal Verbs

The results reported in this section are concerned with how the Image Schemas Training Group understand 'on' and 'off' in phrasal verbs. The topic of 'on' and 'off' in phrasal verbs will be discussed distinctly in two sub-aspects: (1) teaching and learning the particle in phrasal verbs and (2) the real-time linguistic output. Figure 5.2 (see Appendix H) shows two visual images used to instruct the Image Schemas Training Group how to conceptualise the multiple meanings of 'on' and 'off' in phrasal verbs.



Figure 5.2 Semantic images of 'on' and 'off'

5.2.1 Teaching and Learning 'On' in Phrasal Verbs

In terms of the spatial senses, most of the participants felt that they had difficulty in understanding two sample sentences concerning 'go on' and 'take on'. In response to how to understand 'go on' in the sample sentence: 'This road goes on from here through many more towns before reaching the ocean.', 8 out of 15 participants reported that they rarely employed the personification of 'the road' combining with the phrasal verb to describe a

moving object for literary effect as representing the meaning of 'extending to make contact'. It seems common to see that the use of personification in English embraces a figurative sense in a way that abstract ideas are vividly represented.

With respect to understanding the semantic space of 'take on' in the sample sentence: 'This is a brief stop to take on passengers and water.', some issues were reported surrounding the application of particles to different means of transport, such as a car, a train or a ship. When it comes to boarding different types of vehicle, the meanings of particles are constructed differently between English and Mandarin Chinese. Participant IS-01 explained how he conceptualised 'take on' as: '..."take on" here means to "pick up" someone or something.' In order to clarify the uncertainty, the researcher explained the differences between 'pick up' and 'take on' to the participants. According to the definitions given in *Collins Free Online Dictionary* (<https://www.collinsdictionary.com>), 'take on' is used to describe a vehicle such as a bus or ship stopping in order to permit passengers or supplies to get on; whereas, 'pick up' is to express something or someone needs to be taken away, often in a car. This type of difficulty in using accurate particles may be due to the negative effects of language transfer. For instance, the Chinese character '上' describes a generic sense of boarding all types of vehicles such as a bus, a train, a ship, or a car. Nevertheless, in English different particles are used. 'On' is used to describe boarding a vehicle (e.g. a train or a bus) that allows passengers to go inside and walk on its interior surface; whereas, 'in' is employed to depict a vehicle (e.g. a car or a taxi) that does not allow passengers to walk on its surface due to its limited space. This finding has an important implication for raising EFL learners' awareness of the unique meaning construction on particles when it comes to the context of boarding a vehicle.

In response to understanding the semantic time of the phrasal verbs, some difficulty in understanding 'get on' in the sample: 'I'm nearly 31 and that's getting on a bit for a footballer.' was found. Almost all of the participants said that they had non-understanding of 'get on' in this given sentence. Therefore, the researcher highlighted the importance of a key word 'footballer' in order to marshal more of the participants' thoughts. Participant IS-13 then asked: 'Does it mean that the age of 31 is a little bit old for being a footballer?' Another participant (IS-09) offered an equivalent Chinese translation of '漸漸上了年紀' (meaning: *getting old*) because she felt that the Chinese character '上' can reflect the temporal concepts of 'on', namely, 'continuation'. Also, it is worth noting that '上' embraces the meaning of 'up' representing the metaphorical sense in a way that the age is increasing. These results were encouraging and suggested that raising awareness of

contextual clues or the employment of accurate language transfer can exert a beneficial effect on assisting EFL learners' meaning construction on phrasal verbs.

When metaphorical senses of 'on' in phrasal verbs were introduced to the Image Schemas Training Group, two discrete types of response emerged from the data analysis. First, a common view amongst participants was that they felt the metaphorical meanings of 'come on' and 'take on' (see below) were easy to understand because they were familiar with the uses of these two phrasal verbs.

- 'Come on Doreen, let's dance.'
- 'No other organisation was able or willing to take on the job.'

Moreover, some participants felt that the conceptual meaning of 'on', representing the relationship between 'contact' and 'support', help them to understand the metaphorical sense of 'come on'. For example, as Participant IS-04 put it: "‘Come on’ means inviting someone to make contact in a social setting.'

In terms of how to conceptualise 'take on', Participant IS-03 said 'Taking on the job means it is a responsibility or a burden for a person to take on his or her shoulder, because in Chinese we say “承擔 (literal meaning: *to carry on a shoulder pole and its load*)” to reflect the similar sense of “on”.’ In other words, highlighting the similar meaning construction between two languages can have a positive effect on understanding some particles in phrasal verbs.

The second type of response to understanding the metaphorical senses of 'on in phrasal verbs' was surrounded by two phrasal verbs, 'go on' and 'put on'. Their sample sentences are shown below:

- 'Going on the few symptoms that we could observe, we were able to diagnose the patient.'
- 'The doctor put the patient on antibiotics.'

The majority of the participants agreed that they had difficulty understanding the metaphorical usage of 'on' applied to the medical setting in terms of two ways: (1) continuation of an action or situation, e.g. 'going on the few symptoms' and (2) making contact, such as 'putting the patient on antibiotics'. A possible explanation for these results may be lack of adequate L2 encyclopaedic knowledge of how English speakers

employ the use of 'on' to describe the development of an illness and the administration of medication.

5.2.2 Linguistic Output of 'On' in Phrasal Verbs

Table 5.3 shows the results obtained from the linguistic output produced by the Image Schemas Training Group. There were two themes, linguistic production of spatial and metaphorical senses of 'on' in phrasal verbs, found in the data analysis.

Table 5.3 In-class task of using 'on' in phrasal verbs to write sentences

Meaning Sense	Participant's Reference	Samples
Space	IS-01	<ul style="list-style-type: none"> I would like to put on my hat when it's cold.
	IS-02	<ul style="list-style-type: none"> Let's get on the train.
	IS-05/IS-06	<ul style="list-style-type: none"> Zoey put on the make-up.
	IS-07/IS-10/IS-11	<ul style="list-style-type: none"> Many people got on the bus this morning.
		<ul style="list-style-type: none"> The woman put on some perfume and went to the party.
	IS-08/IS-09	<ul style="list-style-type: none"> My grandpa got his glasses on to read newspapers.
	IS-12/IS-15	<ul style="list-style-type: none"> She got her coat on and went out. She put on some make-up before going out for a date.
Metaphor	IS-13/IS-14	<ul style="list-style-type: none"> She put on the make-up before going out for work.
	IS-01	<ul style="list-style-type: none"> Come on! Stop being like a child. What's going on?
		<ul style="list-style-type: none"> Come on! Tell me something.
	IS-02	<ul style="list-style-type: none"> I took on new responsibilities.
	IS-03	<ul style="list-style-type: none"> Come on! Turn the radio on.
		<ul style="list-style-type: none"> My heart will go on. We get on with each other well. I can't take on anymore.
	IS-05/IS-06	<ul style="list-style-type: none"> Come on. Just give it a try.
		<ul style="list-style-type: none"> What's going on here? She's tired of taking on everything.
	IS-07/IS-10/IS-11	<ul style="list-style-type: none"> Come on, Rosy. Let's play.

	<ul style="list-style-type: none"> • Lisa went on her speech after she finished talking to Tom. • Hand decided to take on the project for the team.
IS-12/IS-15	<ul style="list-style-type: none"> • Come on, Victoria. Let's go party. • The meeting went on well without Joey. • Tony took on the responsibilities of his family business.
IS-13/IS-14	<ul style="list-style-type: none"> • Come on, kids. Let's go party. • It took Lucy many years to go on her study.

In terms of the linguistic production of spatial meanings, a common concept of 'in contact with the surface of human body' such as clothing, make-up, perfume, glasses, and vehicles recurred throughout the dataset. A possible explanation for this might be that the similar meaning construction on the particle 'on' is shared between English and Mandarin Chinese. For example, in Mandarin Chinese, the verb '穿上' is used to express placing a piece of clothing on the human body. Another interesting finding relating to the production of spatial senses was found in the uses of 'get on' and 'put on'. This phenomenon may be due to the participants' accounts of events from their daily routine or life experience.

When it comes to the linguistic production of metaphorical senses, three sub-themes were identified. First, almost all the participants used 'come on' to express the concept of making emotional contact. Second, the participants tended to use 'go on' for depicting the concept of 'continuation' of an action. Third, 'take on' was found to be used frequently to express the concept of 'contact/ support' in the aspects of jobs, responsibilities or emotions. It seems that some metaphorical meanings of 'on' in phrasal verbs are entrenched in the participants' mental lexicon, while they tend to apply certain patterns of usage to the linguistic production. Unfortunately, there was no data found in response to the temporal use of 'on' in the phrasal verbs.

5.2.3 Teaching and Learning 'Off' in Phrasal Verbs

A visual image, illustrating separation of two entities spatially (see Figure 5.2), was introduced to the Image Schemas Training Group to acquire 'off' in phrasal verbs. Three themes, in terms of constructing meanings of space, time, and metaphor, emerged from the analysis. Interestingly, the overall response to understanding the spatial meaning of 'off' in phrasal verbs was positive. For example, one participant explained how he conceptualised the meaning of 'get off' in the sample sentence: 'Let's get off the train at the next stop.' in the following extract:

- Participant IS-04: 'I can use the concept of 'on' to understand the opposite meaning of 'off', because 'on' means that passengers can walk on the surface inside the train.'

These results suggested that learning opposite particles as one set has a beneficial effect on helping L2 learners acquire the particles in phrasal verbs in a more systematic and efficient manner, as contrary meanings can be used to be complementary to each other. The results have also been reported in Section 5.1.1, while introducing 'in' and 'out' to describe the inward and outward movements of tides or waves.

When respondents were asked to report their understanding of the temporal senses of 'off' in phrasal verbs, the overall response to this question was positive. A possible explanation of these results may be that these L2 learners were familiar with the use of 'off' while describing the interruption of flow such as 'getting off from work', 'putting off the meeting until a later time', or 'taking time off', from their prior L2 knowledge.

Regarding the metaphorical understanding of 'off' in phrasal verbs, some participants felt that they had difficulty conceptualising 'go off' in the sample sentence: 'Then the fire alarm went off. I just grabbed my clothes and ran out.' The following data extract showed how the participants constructed the meaning of 'off' differently:

- Participant IS-03: 'It is quite difficult to understand the sentence: "The fire alarm went off." or "A gun went off." because in Chinese, we use 'on' to express the meaning of starting a device. For example, we say '開火 (literal meaning: *on fire*)' or '開槍 (literal meaning: *the gun is on*).'

Accordingly, English and Mandarin Chinese users place opposite L1 meaning construction on the above example. English users view 'off' as 'being away from the normal state' to describe a scenario of 'starting a fire alarm' while Mandarin Chinese speakers adopt the use of 'on'. After further explaining the conceptual meanings of 'off' in English, Participant IS-03 came up with the use of 'kick off' reflecting the similar use of 'go off' mentioned above. The results were encouraging as some EFL learners are able to develop the in-depth analysis in terms of semantic elaboration.

Another interesting aspect of the data was found in the analysis of the sample sentence: 'Her approach to the issue put off voters.' Participant IS-09 suggested that she would use an equivalent Chinese translation: '脫離 (meaning: *losing contact and support*)' to help her

to understand this metaphorical sense and further to enhance her memory retention. She explained that the Chinese character ‘離’ shares the similar concept to ‘off’. Both indicate the conceptual meaning of ‘separation’. Participant IS-14 added her positive comments about this sample sentence: ‘understanding the personification of phrasal verbs has a positive effect on improving my communication in English’.

5.2.4 Linguistic Output of ‘Off’ in Phrasal Verbs

The themes identified in the responses to using ‘off’ in phrasal verbs to make sentences are set out in Table 5.4. Three themes: the production of spatial, temporal and metaphorical senses emerged from the analysis.

Table 5.4 In-class task of using ‘off’ in phrasal verbs to write sentences

Meaning Sense	Participant's Reference	Samples		
Space	IS-01	<ul style="list-style-type: none">• The airplane just took off.		
	IS-02	<ul style="list-style-type: none">• Get off the bus now!• The airplane is taking off.		
		IS-03	<ul style="list-style-type: none">• The plane is taking off.	
	IS-04	<ul style="list-style-type: none">• Get off the train.• The airplane is taking off.		
		IS-05/IS-06	<ul style="list-style-type: none">• Please take off your high heels.	
	IS-07/IS-10/IS-11	<ul style="list-style-type: none">• The plane took off ten minutes ago.		
	IS-08/IS-09	<ul style="list-style-type: none">• Come off of the building. It's on fire.• I will get off at the next stop and then arrive home before dinner.• The plane to Malaysia took off.		
		IS-12/IS-15	<ul style="list-style-type: none">• Lisa got off the bus and went to school.• Get off me. Leave me alone.	
			IS-13/IS-14	<ul style="list-style-type: none">• She came off of the stage with regret.• Get off him.• She got off the airplane.
	Time	IS-05/IS-06		<ul style="list-style-type: none">• We will take some time off.
		IS-07/IS-10/IS-11		<ul style="list-style-type: none">• It's ten o'clock. I can finally get off.• My departure time was put off.
			IS-08/IS-09	<ul style="list-style-type: none">• The professor put off the date for our next meeting.
			IS-12/IS-15	<ul style="list-style-type: none">• Amy took 10 days off from her work.

	IS-13/IS-14	• I'll take a day off next Monday.
Metaphor	IS-01	• The meat has already gone off.
	IS-02	• The milk has gone off. Don't drink it.
	IS-03	• Come off the drug.
	IS-05/IS-06	• Zark tried to come off the weed.
	IS-07/IS-10/IS-11	• The gun went off accidentally.
	IS-08/IS-09	• All electrical devices went off last night.
	IS-12/IS-15	• Her impoliteness put her friends off.

It is apparent from this table that 'off' in phrasal verbs was used spatially to describe means of transport such as aeroplane, bus or train, to be separated from an entity. For example, the combination of an aeroplane and the phrasal verb 'take off' has recurred throughout the dataset. Another tendency to produce sentences by employing the temporal expression of 'taking some time off' has been identified throughout the dataset. These results may be explained by the fact that the participants' pre-existing L2 mental lexicon has influenced their linguistic output.

Concerning the metaphorical production obtained from the dataset, two obvious examples were found in the data analysis. For instance, Participants IS-05 and IS-06 elicited an example: 'Zark tried to come off the weed.' to apply the abstract concept of 'come off' to 'losing contact with a drug or medicine'. Another example can be referred to in the sentence: 'Her impoliteness put her friends off.' (Participants IS-12 and IS-15) to express negative emotions. It can therefore be assumed that the cognitive linguistic approach of image schemas has a beneficial effect on developing EFL learners' linguistic output.

5.3 Training Session Three: Up-Down in Phrasal Verbs

This section reports the results in relation to teaching and learning 'up' and 'down' in phrasal verbs' and the linguistic output of using these two target particles in phrasal verbs during the training session. The Image Schemas Training Group was given one visual image illustrating an up-down arrow as shown in Figure 5.3 (see Appendix K) to conceptualise the polysemous meanings of 'up' and 'down' in phrasal verbs.

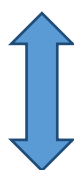


Figure 5.3 Semantic images of 'up' and 'down'

5.3.1 Teaching and Learning 'Up' in Phrasal Verbs

In the aspect of semantic space of 'up', some participants had difficulty understanding 'take up' and 'put up'. Two relevant examples are described below:

- 'The skirt is too long. I'll have to take it up.'
- 'He was putting up a new fence at his home.'

In order to help the participants to apply the spatial concept to understanding the above phrasal verbs, the researcher highlighted the importance of 'up' as referring to 'upward movement'. After the semantic space was restated, Participants IS-09 and IS-14 both responded that "'take up" means that the length of the skirt is moving up so the skirt becomes shorter. Similarly, "put up" means the height of the new fence is going up.' These results may suggest that L2 learners benefit from the semantic space to infer the meanings of 'up' in phrasal verbs.

In response to the temporal meaning of 'up' in phrasal verbs, most of the participants in the Image Schemas Training Group indicated that the semantic time of 'up' remained uncertain. The results revealed that some of the participants were confused about the meanings of 'go up' and 'take up'. The data extracts are shown below:

- 'My new calendar only goes up to December.'
- 'I wouldn't want to take up too much of your time.'

'Up' in these two phrasal verbs means 'reaching to the highest point of time'. After highlighting this concept, most of those who felt confused commented that the training session with the cognitive linguistic approach of image schemas gave them insights into how to conceptualise the phrasal verbs based on the semantic space.

When it comes to the metaphorical meanings of 'up', three phrasal verbs: 'come up', 'get up', and 'take up' emerged from the analysis as being difficult to comprehend. Their examples are as follows:

- 'We came up to Canada to look for wolves.'
- 'Let's get a team up and enter the tournament.'
- 'We'll take each issue up separately.'

In the case of 'come up', two conceptual metaphors: NORTH IS UP and SOUTH IS DOWN combined with the equivalent Chinese translation i.e. '北上南下' (literal meaning: *north up south down*) were introduced. The majority of the participants felt that similar meaning construction between Mandarin and English help their understanding of the particles in phrasal verbs.

As regards 'get up', one of the concepts of 'up' referring to 'reaching to the highest point' was highlighted. The most surprising aspect of the data was when one of the participants explained in an in-depth analysis of how he inferred the meaning of 'get up'. His data extract is shown below:

- Participant IS-04: ' To get a team up means the coach has to get the best people in a team in order to enter the tournament, and then cheer them up to make them happy. This can make the team players try their best to win the game.'

With respect to 'take up', the semantic metaphor of 'up' referring to 'higher up is more visible, accessible, known' was elicited, according to Rudzka-Ostyn's meaning categories (2003: 85). Interestingly, Participant IS-04 agreed that this concept helped his understanding. On the contrary, he also commented that 'It is still difficult for me to remember its meaning. It's better if I can come up with a Chinese translation.' The difficulty for Mandarin Chinese-speaking English learners in understanding the semantic metaphor of phrasal verbs would seem to stem from the complexity of meaning construction on phrasal verbs.

Together these results provide important insights into the similar and unique meaning construction on phrasal verbs between English and Mandarin Chinses. For similar patterns, the results suggest that language transfer and universal conceptual metaphors have a positive effect on improving EFL learners' understanding. For unique patterns, it seems that L2 learners need to foster their knowledge of in-depth analysis.

5.3.2 Linguistic Output of 'Up' in Phrasal Verbs

This section will look at the features of the linguistic data obtained from the in-class task. The results of producing sentences by using 'up' in phrasal verbs are compiled and shown below in Table 5.5.

Table 5.5 In-class task of using 'up' in phrasal verbs to write sentences

Meaning Sense	Participant's Reference	Samples
Space	IS-01	• The dog got up when I patted him.
	IS-03	• The dog got up when I left the house.
	IS-04	• My dog got up when we took him out.
	IS-05/IS-06	• The sea level is going up due to climate change.
		• Please take up a bottle of water from the lower shelf.
	IS-07/ IS-10/IS-11	• When the full moon comes up, the wolves are howling.
		• We put up the poster on the wall.
	IS-08/IS-09	• Sharon just put up a poster on the wall.
	IS-12/IS-15	• My friend came up and knocked my door.
		• The tourist went up the historical building in Cambodia.
Time	IS-13/IS-14	• Mary put up a new bookcase at home.
		• The cat went up on the desk.
		• She put up her poster to explain the new issues.
	IS-05/IS-06	• This lecture will not take three hours up.
	IS-07/IS-10/IS-11	• Traveling around the USA on foot takes up too much time.
Metaphor	IS-12/IS-15	• Please help me. It won't take up too much of your time.
	IS-13/IS-14	• Our boss took up the whole afternoon to discuss this matter in the meeting.
	IS-01	• I have come up with an idea.
	IS-02	• Come up with the ideas.
	IS-03	• Come up with an idea.
	IS-04	• Come up with an idea.
	IS-05/IS-06	• The amount of money in my bank account can't come up very quickly.
		• Let's get up the proposal for our next case.
	IS-07/IS-10/ IS-11	• The interest rate of Euro is going up.
		• Get her up right away. She has slept for ten hours.

IS-08/IS-09	<ul style="list-style-type: none"> • Have you come up with any solutions to this maths problem? • The temperature in summer has been going up. • I got up at six this morning. • We'll take each maths question up and discuss with the whole class.
IS-12/IS-15	<ul style="list-style-type: none"> • Please get up early so that you can catch up your train.
IS-13/IS-14	<ul style="list-style-type: none"> • He will come up to Taipei for holidays. • Get up now! You are late.

Three themes emerged from the analysis. Firstly, spatial meanings of 'up' in phrasal verbs were found to be applied to the contexts of atmospheric phenomena and personal life experience. In terms of atmospheric phenomena, Participants IS-07, IS-10 and IS-10 provided an example: 'When the full moon comes up, the wolves are howling.' Participant IS-05 and IS-06 suggested another sentence: 'The sea level is going up due to climate change.' In the context of describing personal life experience, a range of examples such as interacting with their pets, travel experience, and school or work events was elicited to reflect how the participants interact with the physical world spatially.

Secondly, in the analysis of the temporal meaning of 'up' in phrasal verbs, the most common examples found in the data involved the use of the phrasal verb 'take up' to express the conceptual sense of 'completeness'. This may be due to the limited sample sentence available to help generate the participants' ideas for expressing semantic time.

Finally, in the case of the metaphorical senses of using 'up' in phrasal verbs, only two common examples were identified: one was 'coming up with ideas'; the other was 'getting up'. These findings may be somewhat limited by the examples and the time available in the training session.

5.3.3 Teaching and Learning 'Down' in Phrasal Verbs

When the participants were asked if they had difficulty learning the spatial meanings of 'down' in phrasal verbs, the majority of participants reported that it was easy for them to conceptualise the meanings as all the sample sentences embraced the same concept referring to 'downward movement' (see Figure 5.3).

When it comes to the semantic time of 'down' in phrasal verbs, an idiom, 'go down in history', was identified as a difficult item to understand. Consequently, the participants were asked to provide a Chinese equivalency to reflect their understanding. Participant IS-03 provided a Chinese translation: '留下歷史 (literal meaning: *leave down history*)' and he explained his reasons for this as follows:

- Participant IS-03: 'I think Chinese translation helps me to learn this idiom. It seems that this way works out for me. I can see that something was passed down from the past generation to the present and future generations. It reminds me we say "上一代 (literal meaning: up generation)" and "下一代 (literal meaning: down generation)" to describe a family tree.'

Similarly, Participant IS-09 expressed her understanding of this expression: 'History is like a time flow and it can be passed down to the next generation like drifting down a river.' From these viewpoints, it can be argued that if a similar conceptual meaning of an idiomatic expression shared by both cultures is found, it can have a positive effect on helping foreign language learners to understand idiomatic phrasal verbs by learning them as a chunk in a way that is similar to the process of first language acquisition.

With respect to understanding the metaphorical meanings of 'down' in phrasal verbs, some participants raised issues surrounding the way to conceptualise 'get down' and 'put down'. The relevant sample sentences are demonstrated below:

- 'Get your head down, you stayed up so late last night.'
- 'He bought an investment property for \$100,000 and put down \$20,000.'

In the case of 'get down', two aspects: (1) downward movement; (2) the phrasal verb, 'stay up', embedded in the given sentence were highlighted in order to stimulate the participants' thoughts. One individual (IS-03) stated that 'I can imagine that I put my head down on the pillow in order to get some rest, by thinking about the opposite meaning of "stay up".' Another (IS-04) added 'Get your head down means going to sleep'. These results may suggest that L2 learners are able to gain insight into how to conceptualise metaphorical extensions by in-depth analysis of the opposite views towards 'up' and 'down'.

In discussing the abstract meaning of 'put down', Participant IS-07 stated that "'Put down \$20,000" means losing an amount of money because "down" can mean something is decreasing.' In order to help the participants comprehend 'put down' accurately in the

given context, Rudzka-Ostyn's (2003) metaphorical concept of 'down'— 'viewing down as the lowest point' was introduced. Interestingly, Participant IS-03 responded that 'I think it means "down payment" but we say "頭期款 (literal meaning: *head payment*)".' It seems that it is difficult for Mandarin-speaking English learners to make sense of 'down' as the initial payment on a purchase. Mandarin Chinese users tend to view such a payment from the viewpoint of 'up', as it can be seen that Chinese word '頭 (*head*)' is used. 'Head' is located in the upper section of the human body and can be metaphorically referred to as a starting point; whereas the English language uses 'down' to describe a threshold. It is likely that this linguistic phenomenon can be explained by one of Langacker's (2008) key notions of cognitive grammar, vantage point, which suggests that particular linguistic choices are made in a way that reflects how conceptualizers view the given situation, according to their experience or purpose.

5.3.4 Linguistic Output of 'Down' in Phrasal Verbs

The results obtained from the Image Schemas Training Group are compiled and shown in Table 5.6. In analysing the linguistic output data concerning the uses of 'down in phrasal verbs', two themes consisting of the spatial and metaphorical usage of 'down' in phrasal verbs emerged and are discussed in the following.

Table 5.6 In-class task of using 'down' in phrasal verbs to write sentences

Meaning Sense	Participant's Reference	Samples
Space	IS-01	• The princess came down from the stairs.
	IS-02	• Please come down from the tree.
		• Take the board game down from the top shelf.
		• Get down! It's too dangerous here.
	IS-03	• They took down the prison.
		• Time's up. Please get your pen down.
	IS-07/IS-10/IS-11	• I put the water bottle down from the cabinet.
	IS-08/IS-09	• The snow came down yesterday.
	IS-12/IS-15	• The landslide came down from the mountains.
		• I took down a drink from the shelf.
Metaphor	IS-13/IS-14	• She got the ball down from the tree.
		• The price went down quickly.
		• I'm going down to London from Newcastle.
		• Put down some of his advice on my notes.

IS-03	<ul style="list-style-type: none"> All the sadness came down to me because I couldn't finish on time.
IS-05/IS-06	<ul style="list-style-type: none"> Japanese Yen went down because of the recent news. Sorry to get you down but the information is correct. The army put the enemies down.
IS-07/IS-10/IS-11	<ul style="list-style-type: none"> Lydia went down to Tinan to visit her boyfriend. The secretary took down everything in the meeting.
IS-08/IS-09	<ul style="list-style-type: none"> The profits gained by this company have been going down. I went down and enjoyed the beauty of Kenting National Park. My students took down the notes in my English class.
IS-12/IS-15	<ul style="list-style-type: none"> I went down to the Philippines for holidays last year. It took me a long time to put 20,000 down to buy this property.
IS-13/IS-14	<ul style="list-style-type: none"> The ring came down to me from my father. He put down \$3,000 to buy a new car. She took down all the sweets her dad gave her.

As can be seen from the table above, two types of sentence were offered regarding the spatial senses of 'down'. The first type is the concept of 'downward movement'. For example, the majority of the participants used 'come down', 'get down', 'put down' and 'take down' to describe an object moving vertically down. The second type involves the concept of 'changing a movement from the vertical to horizontal position'. A case can be found in the example provided by Participant IS-03: 'Get down! It's too dangerous here.' She explained her reason for producing this, which was that she had frequently encountered the sentence while watching police-and-gangster films. It seems that incidental learning can have a positive effect on L2 learner's production of phrasal verbs.

Five themes in relation to adopting the conceptual metaphors of 'down' were identified. A range of examples under the subheadings of themes is listed below:

- DECREASE IS DOWN:

Participant IS-01: 'The price went down quickly.'

Participant IS-05/ IS-06: 'Japanese Yen went down because of the recent news.'

Participant IS-08/ IS-09: 'The profits gained by this company have been going down.'

- SOUTH IS DOWN:

Participant IS-01: 'I'm going down to London from Newcastle.'

Participant IS-07/ IS-10/ IS-11: 'Lydia went down to Tinan to visit her boyfriend.'

Participant IS-08/ IS-09: 'I went down and enjoyed the beauty of Kenting National Park.'

Participant IS-12/ IS-15: 'I went down to the Philippines for holidays last year.'

- WRITING IS DOWN/ EATING IS DOWN:

Participant IS-01: 'Put down some of his advice on my notes.'

Participant IS-07/ IS-10/ IS-11: 'The secretary took down everything in the meeting.'

Participant IS-08/ IS-09: 'My students took down the notes in my English class.'

Participant IS-13/ IS-14: 'She took down all the sweets her dad gave her.'

- UNHAPPY IS DOWN:

Participant IS-03: 'All the sadness came down to me because I couldn't finish on time.'

Participant IS-05/ IS-06: 'Sorry to get you down but the information is correct.'

- EXTREME LIMIT OF THE SCLAE IS DOWN:

Participant IS-05/ IS-06: 'The army put the enemies down.'

Participant IS-12/ IS-15: 'It took me a long time to put 20,000 down to buy this property.'

Participant IS-13/ IS-14: 'He put down \$3,000 to buy a new car.'

Interestingly, a wider range of responses was elicited by the participants to demonstrate their receptive knowledge of 'down' and to further apply metaphorical concepts to using phrasal verbs in various contexts. These findings suggest that the training sessions with the cognitive linguistic approach of image schemas might play a vital role in stimulating L2 learners' imagination and analogy in the process of learning.

5.4 Initial Discussion of Image Schemas Employed in Learning Particles in Phrasal Verbs

The purpose of this chapter is to answer research question two, which set out to investigate what impact the cognitive linguistic approach of image schemas can have on assisting Mandarin Chinese-speaking learners of English to acquire particles in phrasal verbs. This chapter begins by discussing the findings which emerged from the qualitative analysis of the three training sessions with the cognitive linguistic approach of image schemas, before presenting the EFL learners' opinions about the application of this

cognitive linguistic approach to the acquisition of phrasal verbs. A synthesis of the results obtained from analysing the training sessions is discussed in this section.

The findings that emerged from the training sessions provided insights into how L2 learners construct meanings on particles in phrasal verbs. A discussion of the results can be divided into four sections: (1) the similar meaning construction between English and Mandarin Chinese, (2) the unique meaning construction between English and Mandarin Chinese, (3) the patterns of linguistic production, and (4) the linguistic errors.

In the case of the similar meaning construction on particles in phrasal verbs between English and Mandarin Chinese, the facilitation can be discussed from three aspects which are: universal conceptual metaphors, visual conceptualization, and positive language transfer. Cognitive linguists argue that different language and cultures analyse environmental factors, such as gravity, temperature and physical substance based on similar imagery (Holme, 2012). Therefore, some scholars suggest that meanings are motivated (Langacker, 2008) and assume that cognitive linguistics can be applied to language teaching and learning (Slobin, 1996). Firstly, the results suggested that the universal conceptual metaphors (Lakoff & Johnson, 1980; 2003), such as TIME IS MONEY, NORTH IS UP, and SOUTH IS DOWN are useful for L2 learners in acquiring phrasal verbs while they are not familiar with the usage. Secondly, some participants commented that they benefitted from visual conceptualization to generalise the meanings of particles in phrasal verbs from spatially to metaphorically. For instance, they inferred from the spatial senses of 'out' in 'Don't forget to put out the garbage.' that 'out' can be applied metaphorically to a social setting (e.g. 'Rachel took me out for lunch.'). Thirdly, the use of language transfer was found in a range of examples emerging from the analysis. For example, 'take in' can be translated into '容納', 'take on' can be '承擔', 'put off' can be '脫離', and 'go down in history' can be '留下歷史'. To sum up, the Chinese equivalencies to English particles, such as 'in' as '納', 'on' as '擔', 'off' as '離', and 'down' as '下', were identified. Another unanticipated finding mentioned above was that an English idiom: 'go down in history' could be translated equally into Mandarin Chinese: '留下歷史'. An implication for these is the possibility that the equivalencies can be used as mnemonic traces to enhance EFL learners' memory retention. This finding raises another possibility: that EFL learners can acquire this type of phrasal verb as a formula in a more efficient and effective manner, as they can conceptualise the meaning without devoting too much cognitive effort.

Although cognitive linguistics treats language cognition based on similar imagery, cultural factors or other construal mechanisms such as higher-level categories (Kövecses, 2005), individual experience affects the different ways in which we perceive the world. The results in this study suggest that there exist some types of unique meaning construction on phrasal verbs between English and Mandarin Chinese. This may cause L2 learners to misunderstand in some way; however, deriving a pedagogical perspective from cognitive linguistics, the unique meaning construction may be turned into new ways of teaching and learning English vocabulary. When it comes to the results regarding the unique meaning construction between English and Mandarin, they suggest that the participants in the Image Schemas Training Group benefited from three types of facilitation. First, the cognitive linguistic approach of image schemas can raise EFL teachers' awareness of learners' errors of particles in phrasal verbs. For example, the data revealed that Mandarin-speaking English learners constantly mistake 'up' for 'in' in the sample sentence: 'Big waves will come in for some time after the storm.' An implication for this is that EFL teachers should possibly explain the different construal patterns (e.g. The 'ocean' is a container and the 'shoreline' is the boundary) to students in order to correct their mistakes. Second, the cognitive linguistic approach of image schemas provides L2 learners with a visual method to conceptualise particles in phrasal verbs. This type of facilitation can be applied to three meaning categories: meanings of space (e.g. 'The road goes *on* from here through many more towns before reaching the ocean.'), time (e.g. 'I wouldn't want to take *up* too much of your time.'), and metaphor (e.g. 'Let's get a team *up* and enter the tournament.'). In the study of Littlemore *et al.* (2011), it is suggested that developing a system of 'error categorisation' could have a positive effect on facilitating EFL students' understanding of concepts of metaphor. These results further support the idea of Evans & Green (2006: 180), who suggest that 'An image schema can give rise to more specific concepts.' Third, it seems that image schemas help to raise EFL learners' awareness of negative language transfer. For instance, the Chinese word '上' involves the meanings of the English particles 'up' and 'on'; '開' means to start a device and can be referred to 'on'. The factor of multiple or salient meanings existing in the L1 mental lexicon would possibly give rise to misuse or misunderstanding of English particles in phrasal verbs. For instance, Mandarin-speaking L2 learners usually mistake 'on' for 'off' in the example: '...the fire alarm went *off*.' An implication for these results is the possibility that highlighting the conceptual meanings of particles by means of image schemas can have a beneficial effect on avoiding confusion about particles in use, despite Littlemore's (2009:35) suggestion that '...transfer from the L1 can be both positive and negative' for foreign language acquisition.

Turning now to the linguistic output produced by the Image Schemas Training Group, there are two factors known to be partially responsible for L2 learners' linguistic performance. These are: pre-existing L2 mental lexicon, and the effect of the training sessions with the cognitive linguistic approach of image schemas. In the case of the first factor, the results suggested that some phrasal verbs or phrases were frequently identified in linguistic output, such as 'Come on!' or 'come up with the ideas'. As for the effects of the training session on production, a range of example was elicited. An idiom: 'come out of the closet' was produced to refer to a metaphorical extension of 'out'. Surprisingly, five types of conceptual metaphor in relation to 'down' in phrasal verbs were found to be prolific in the output. The types of conceptual metaphor emerging from the data consisted of: (1) DECREASE IS DOWN, (2) SOUTH IS DOWN, (3) WRITING/ EATING IS DOWN, (4) UNHAPPY IS DOWN, and (5) EXTREME LIMIT OF THE SCLAE IS DOWN (Rudzka-Ostyn, 2003).

Lastly, in terms of the linguistic errors identified in the data analysis, only two sentences were found to be inaccurate related to the misuse of the particle. However, with a small sample size caution must be applied, and the findings might be limited by the time available for data collection during the training sessions. Together these findings will doubtless be much scrutinised, but there are some immediately dependable conclusions concerning the positive effect of rich instruction (Nation, 2001) with the cognitive linguistic approach of image schemas on developing L2 learners' real-time linguistic production and their familiarity with L2 words or phrases in their mental lexicon. Further studies, which take the longitudinal variables into account, will need to be undertaken.

This chapter has discussed the findings emerging from analysis of the cognitive linguistic approach of image schemas. A summary of the main findings and of the principal issues and suggestions which have arisen in this discussion are provided in Chapter 9, which presents an overall evaluation of the three cognitive linguistic approaches adopted in this investigation.

Chapter 6 The Use of Cognitive Linguistic Approach of Categorisation—Findings and Discussion

The purpose of this chapter is to report the results of the use of the cognitive linguistic approach of categorisation in teaching and learning particles in phrasal verbs. In this chapter, I begin with the data from the three training sessions before addressing the initial discussion on the employment of this cognitive linguistic approach in EFL, and each of the sections presents the findings in relation to research question two. The results reported in this chapter are further compared with those in Chapters 4, 5, 7, and 8 to provide an overall evaluation (Chapter 9) of the three cognitive linguistic approaches adopted in this thesis.

Of the 15 participants who were recruited in the Categorisation Training Group, 13 were undergraduates and 2 were postgraduates either in the UK or attending Taiwan higher education institutes. All the participating Mandarin Chinese-speaking L2 learners had a minimum of 7-year English learning experience and they all voluntarily participated in this research project. The biodata information of the Categorisation Training Group can be seen in detail in Table 4.1 (p.69).

The data presented in this chapter was mainly from two sources: (1) video recordings and (2) recorded linguistic output in the three training sessions with the cognitive linguistic approach of categorisation, collected during all the training sessions were completed. Considering the factors of reliability and validity, the procedures for data collection and data analysis of this cognitive linguistic approach were the same as those in the other two cognitive linguistic approaches: image schemas and frame semantics. The details of data collection and data analysis are shown in Sections 3.2 and 3.3.

Three pairs of opposite particles in phrasal verbs containing ‘in-out’ in phrasal verbs, ‘on-off’ in phrasal verbs, and ‘up-down’ in phrasal verbs were introduced respectively in the three training sessions. The procedures for conducting the training sessions with the cognitive linguistic approach of categorisation were the same as those with the cognitive linguistic approach of image schemas and frame semantics. Details of how to instruct particles in phrasal verbs are shown in the introductory section of Chapter 5.

A set of worksheets (see Appendix F, I, and L) designed to teach and learn particles in phrasal verbs was used in the training sessions with the cognitive linguistic approach of categorisation, each of which contains four sections addressed below:

- a list of 10 target phrasal verbs

- two radial category diagrams, each of which illustrates a semantic network of meanings of one selected phrasal verb
- a table of sample sentences comprising meanings of space, time and metaphor
- two in-class tasks, asking participants to construct a word map by using one of the given phrasal verbs accompanied by sentences to cover meanings of space, time and metaphor

The design of the second and fourth sections was to meet the purposes of the use of the cognitive linguistic approach of categorisation. For instance, in the second section of the worksheet participants were given a radial category diagram elaborating the central and distinct meanings of one of the target particles in phrasal verbs. In addition the fourth section of the worksheet, i.e. the in-class task, was to provide L2 learners with an opportunity to reflect what they had learned from the application of the theory of categorisation. The conceptual meanings shown in the radial category diagrams of Worksheets 2, 5, and 8 (see Appendix F, I, and L) were borrowed from the terminology used in Rudzka-Ostyn's (2003) textbook: *Word Power: Phrasal Verbs and Compounds – A Cognitive Approach*. She adopts an insight-oriented approach that aims to employ abstract drawings in order to encourage students to visually focus on learning the multiple meanings of phrasal verbs by the arrangement of the particle-based semantic networks. Taken together, the purpose of using the worksheets in the training sessions set out to investigate to what extent the cognitive linguistic approach of categorisation can assist Mandarin-speaking English learners to construct meanings on particles in order to understand phrasal verbs.

The following sub-sections from 6.1 to 6.3 will report the results concerning the cognitive linguistic approach of categorisation employed in the context of teaching and learning 30 commonly used phrasal verbs. Section 6.1. contains the results of 'in-out' in phrasal verbs, Section 6.2 provides the results of 'on-off' in phrasal verbs and Section 6.3 reveals the results of 'up-down' in phrasal verbs. Each section centres on two main aspects: teaching and learning particles in phrasal verbs and the linguistic output produced in the in-class tasks.

6.1 Training Session One: In-Out in Phrasal Verbs

This section reports two aspects of the findings obtained from the first training session. One is how Mandarin English learners constructed meanings on 'in' and 'out' in phrasal verbs via the cognitive linguistic approach of categorisation, and the other is how they applied the concepts they received to producing linguistic examples. All the relevant examples discussed can be referred to in Worksheet 2 (see Appendix F).

6.1.1 Teaching and Learning 'In' in Phrasal Verbs

As shown in Figure 6.1, a radial category diagram was introduced to help the Categorisation Training Group to learn 'in' in phrasal verbs by using the phrasal verb 'get in' as an example.

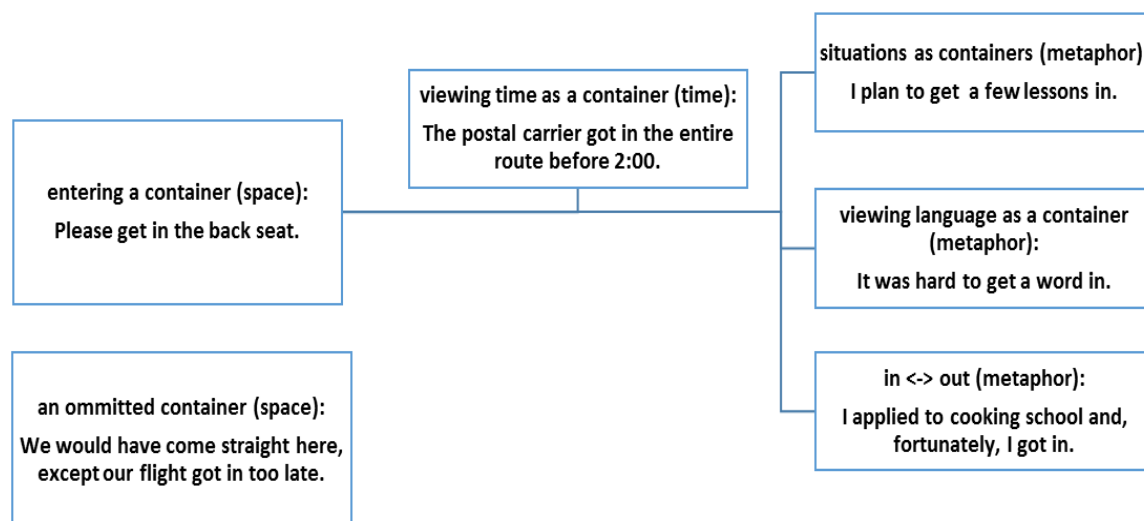


Figure 6.1 A radial category diagram: get 'in'

In the participants' accounts of 'in' in phrasal verbs surrounding a sample sentence: 'Big waves will come in for some time after the storm.' one participant (CG-01) said 'I think the container used in this sentence is waves.' Talking about this issue, another participant offered the following explanation:

Participant CG-05: 'The waves are the moving objects so they cannot be the containers. Chinese has a similar expression to describe the inward movement of the waves such as 潮水涌入 (meaning: *The waves are coming in.*). You can use your imagination to picture the horizontal movements of the waves.'

The results suggested that not every L2 learner is able to grasp the meaning of particles from the perspective of space as access to the meanings of phrasal verbs. It is possible, therefore, that the participant's individual factors may affect his or her metacognition, namely in-depth analysis of new information.

6.1.2 Linguistic Output of 'In' in Phrasal Verbs

Table 6.1 presents an overview of the sentences made by the Categorisation Training Group. Three broad themes were identified in conjunction with the meanings of space, time and metaphor.

Table 6.1 In-class task of using one of 'in' in phrasal verbs to make sentences covering meanings of space, time, and metaphor

Participant's Reference	The Chosen Phrasal Verb	Samples
CG-01/CG-02/CG-03	go in	Spatial meaning
		<ul style="list-style-type: none"> • They went in the office to see their boss.
		Temporal meaning
CG-04/CG-05/CG-06	take in	<ul style="list-style-type: none"> • n/a
		Metaphorical meaning
		<ul style="list-style-type: none"> • The new concept didn't go in even I tried hard.
CG-07/CG-08/CG-09	get in	Spatial meaning
		<ul style="list-style-type: none"> • I got in my dad's car.
		Temporal meaning
CG-10/CG-11/CG-12	take in	<ul style="list-style-type: none"> • I have to get in 5 more minutes before lunchtime.
		Metaphorical meaning
		<ul style="list-style-type: none"> • I finally got in on the latest knowledge of my subject.
CG-10/CG-11/CG-12	take in	Spatial meaning
		<ul style="list-style-type: none"> • n/a
		Temporal meaning
CG-10/CG-11/CG-12	take in	<ul style="list-style-type: none"> • ?A day takes in 24 hours.
		Metaphorical meaning

CG-13/CG-14/CG-15	put in	<ul style="list-style-type: none"> • We need to take in a lot of food. • Taiwan takes in a population of more than 23 million people.
		Spatial meaning
		<ul style="list-style-type: none"> • The government decided to put more forces that are military in barracks for service.
		Temporal meaning
		<ul style="list-style-type: none"> • Mum wants to put in one hour a day to practise new dance moves.
		Metaphorical meaning
		<ul style="list-style-type: none"> • We need to put more money in to support our investment.

Note. [?]Incorrect usage

The above table reveals some surprising results. Firstly, from the data analysis (Table 6.1), we can see that the majority of the participants used an enclosed space such as an office or a vehicle responding to the spatial meaning of the phrasal verbs. The most interesting aspect of the data provided by Participants CG-13, CG-14, and CG-15 was in the example: 'The government decided to put more forces that are military in barracks for service.' Compared to other participants, they offered a different context to view a barrack as a container for the purpose of housing military personnel. This group of participants was further asked to suggest their reasons for creating this particular sentence. One group member (Participant CG-13) reported: 'I came up with this idea based on my experience of serving the military in Taiwan.' This finding, while preliminary, suggests that the importance of incidental learning be highlighted as L2 learners' life experience may help them to broaden and deepen their L2 vocabulary in use.

Secondly, only two sentences were found in response to the temporal concept: 'viewing a limited amount of time as a container' by replicating the usage of the phrasal verbs 'put in' and 'get in' provided in Worksheet 2 (Appendix F). The most striking result to emerge from the data is an example: [?]'A day takes in 24 hours.' (Participants CG-10, CG-11, and CG-12). The respondents were asked to explain their reason for making this sentence. They suggested that the abstract meaning of 'take in' representing a concept of inclusion was employed. Although their application of the phrasal verb 'take in' is considered to be correct usage in the aspects of syntax and semantics, this sentence is still regarded as an uncommon and unnatural use in English, based on consulting dictionaries and a native English speaker with 20-year experience of teaching English.

Thirdly, in response to the metaphorical uses of 'in' in phrasal verbs, a range of examples was elicited. Four target phrasal verbs: 'go in', 'get in', 'put in', and 'take in' were used widely in the concepts of viewing 'mind', 'brain', 'human body', 'lodging', or 'investment' as an abstract container. Lakoff's (1987) theory of radial category suggests that the subcategories are motivated in such a way that they are endorsed by the prototype. It seems that this theory can be used to explain in a sense that L2 learners can employ the metaphorical senses more broadly by inferring from what they have learned about the prototypical meanings in the training session.

6.1.3 Teaching and Learning 'Out' in Phrasal Verbs

The Categorisation Training Group was given a radial category diagram to acquire the multiple meanings of 'out' in phrasal verbs, as can be seen in Figure 6.2. Given the fact that the examples provided in the dictionaries (see Section 3.2.5) are not available to reflect the temporal sense of 'out' on the phrasal verbs selected in this study, the examples relating to this type of meaning were absent.

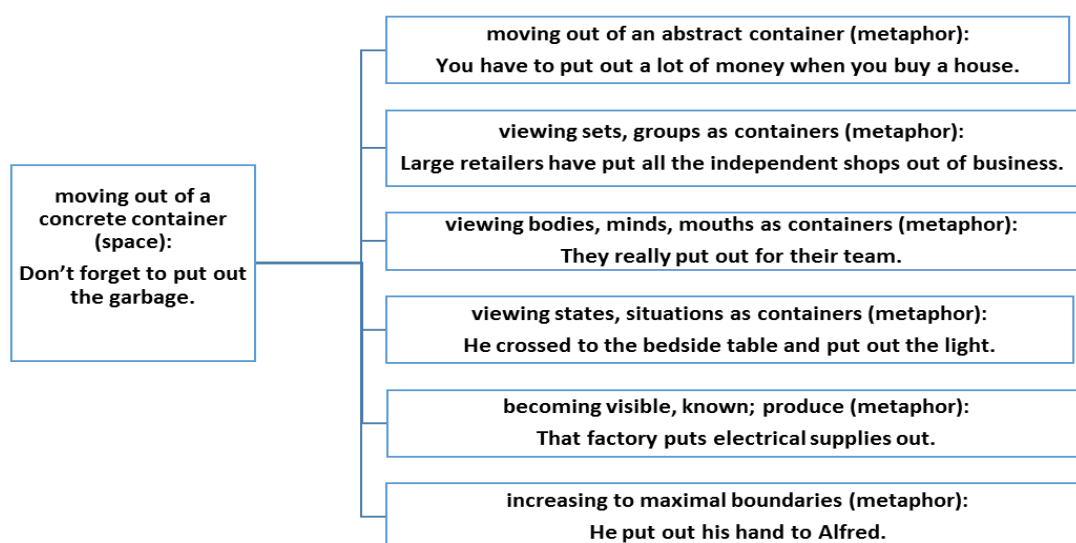


Figure 6.2 A radial category diagram: put 'out'

Three themes were identified from analysing the data. The first was the facilitating strategies that participants employed to learn phrasal verbs. The second was surrounding the issues of overgeneralisation. The third was the difficulty experienced in understanding 'personification'. To start with the first theme, two examples were identified to show the evidence of the usefulness of the training session. A common view amongst the Categorisation Training Group was that they had difficulty understanding the sample sentence: 'They really put out for their team.' by viewing a peripheral sense of 'out' in a way that considers human minds as containers. The researcher, thus, used the radial

category provided in Figure 6.3 to assist the Categorisation Training Group to conceptualise the given sentence by developing a metaphorical awareness. Initially, the spatial sense of ‘effort’ was highlighted to mean ‘the use of physical or mental energy to do something’. Next, the participants were given a concept of viewing ‘mental energy’ as an abstract entity that can move out of a human mind in order to achieve a goal. Then participants were asked to indicate whether it would be useful to understand the abstract sense via this process. The overall response to this question was positive. L2 learners’ difficulty understanding this example would seem to stem from the limited instruction in learning how to adopt metaphorical thinking.

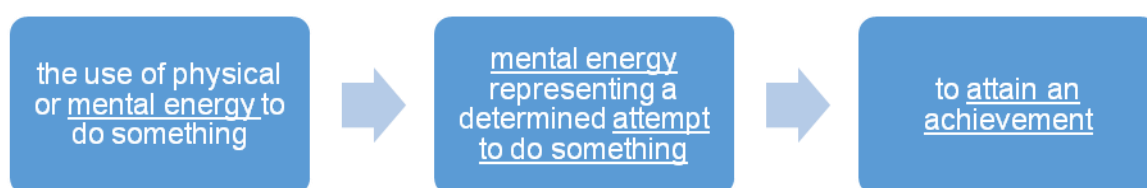


Figure 6.3 The radial category of the word ‘effort’ by introducing its prototypical to peripheral sense

Turning now to the second example relating to the first theme, some respondents suggested that equivalent Chinese translation has a beneficial effect assisting their understanding of phrasal verbs that share similar concepts. For example, Participant CG-07 provided two equivalent Chinese translations to reflect the same meaning of ‘out’, such as read it out (讀出來) and speak it out (說出來). In Chinese, ‘出來’ shares a similar meaning with the English particle ‘out’, to some extent.

In terms of the second theme, the sample sentence: ‘He crossed to the bedside table and put out the light.’ was found in relation to overgeneralisation. Participant CG-07 suggested an incorrect use of the phrasal verb ‘put in the light’ to express the meaning of ‘switching on the light’ in contrast to the meaning of ‘put out’ as ‘to stop a light burning or shining’. This type of difficulty in terms of making an appropriate analogy between phrasal verbs can be attributed to overgeneralising the meanings of particles and lack of adequate L2 vocabulary knowledge.

The third theme was relating to the type of difficulty in understanding ‘personification’ in a range of the examples provided in the worksheets, as Participant CG-14 commented: ‘I felt that many sample sentences in the worksheets use “personification” to express something abstract, especially in the meanings of metaphor. I rarely use this in my English

speaking or writing.’ Lakoff & Johnson (2003:33) argue that ‘personification’ is used commonly in metaphors, and has some features such that ‘...we are seeing something nonhuman as human. But personification is not a single unified general process. Each personification differs in terms of the aspects of people that are picked out.’ This can be used to explain why some L2 learners have difficulty understanding ‘personification’ embedded in metaphors, as an awareness of this aspect is rarely raised in the process of teaching and learning. However, Lakoff and Johnson suggest a way in which people can apply to understanding ‘personification’ as follows:

‘What they all have in common is that they are extension of ontological metaphors and that they allow us to make sense of phenomena in the world in human terms—terms that we can understand on the basis of our own motivation, goals, actions, and characteristics. Viewing something as abstract as inflation in human terms has an explanatory power of the only sort that makes sense to most people.’
(Lakoff & Johnson, 2003: 34)

6.1.4 Linguistic Output of ‘Out’ in Phrasal Verbs

Table 6.2 presents the summary of the results obtained from analysis of the recorded linguistic data, choosing one of the given phrasal verbs with ‘out’ to produce sentences. The findings of the data can be divided into three aspects: the spatial sense, the temporal sense and the metaphorical sense.

Table 6.2 In-class task of using ‘out’ in phrasal verbs to make sentences covering meanings of space, time and metaphor

Participant's Reference	The Chosen Phrasal Verb	Samples
CG-01/CG-02/CG-03	take out	<p>Spatial meaning</p> <ul style="list-style-type: none"> Go to my room and take out the book. <p>Temporal meaning</p> <ul style="list-style-type: none"> n/a <p>Metaphorical meaning</p> <ul style="list-style-type: none"> Don't take your negative emotion out on your family. The coach took him out of the team.

CG-04/CG-05/CG-06	take out	<p>Spatial meaning</p> <ul style="list-style-type: none"> • We take our dog out for a walk every day. <p>Temporal meaning</p> <ul style="list-style-type: none"> • n/a <p>Metaphorical meaning</p> <ul style="list-style-type: none"> • We took out some fish and chips and ate at home.
CG-07/CG-08/CG-09	take out	<p>Spatial meaning</p> <ul style="list-style-type: none"> • I took the rubbish out, <p>Temporal meaning</p> <ul style="list-style-type: none"> • n/a <p>Metaphorical meaning</p> <ul style="list-style-type: none"> • My boyfriend took me out to a fancy restaurant.
CG-10/CG-11/CG-12	come out	<p>Spatial meaning</p> <ul style="list-style-type: none"> • The sun came out and the weather became warm. • The monster came out of the lake. <p>Temporal meaning</p> <ul style="list-style-type: none"> • n/a <p>Metaphorical meaning</p> <ul style="list-style-type: none"> • The election result finally came out. He was elected to be the President of USA. • An annual budget for the national defence system came out of the long meeting.
CG-13/CG-14/CG-15	put out	<p>Spatial meaning</p> <ul style="list-style-type: none"> • Put your books out. <p>Temporal meaning</p> <ul style="list-style-type: none"> • n/a <p>Metaphorical meaning</p> <ul style="list-style-type: none"> • It will be better to [?]put out your imagination. Face the reality.

Note. [?] Incorrect usage

First, concerning the basic sense of space, the majority of sentences produced by the Categorisation Training Group were associated with enclosed containers such as a house, a room or a book bag, reflecting the physical environment surrounding the respondents. Next, regarding the sense of time, it is apparent from the table above that none of the

sentences were generated, owing to the limited examples provided in relation to the given phrasal verbs in this study. Last, what is interesting in this dataset is that four types of metaphorical extensions were identified to express a range of meanings for 'out' in phrasal verbs based on Rudzka-Ostyn's (2003:14-47) categories. These categories in conjunction with 'out' accompanied by the sample sentences are shown below:

- Out: eat or inviting to eat away from home
Participant CG-04/ CG-05/ CG-06: 'We took out some fish and chips and ate at home.'
Participant CG-07/ CG-08/ CG-09: 'My boyfriend took me out to a fancy restaurant.'
- Out: sets, groups are containers
Participant CG-01/ CG-02/ CG-03: 'The coach took him out of the team.'
- Out: bodies, minds, mouths are viewed as containers
Participant CG-01/ CG-02/ CG-03: 'Don't take your negative emotion out on your family.'
- Out: non-existence, ignorance, invisibility also function as containers
Participant CG-10/ CG-11/ CG-12: 'The election result finally came out. He was elected to be the President of USA.' 'An annual budget for the national defence system came out of the long meeting.'

However, there was an error found in the sample: '*It will be better to ?put out your imagination. Face the reality.*' (CG-13, CG-14 and CG-15). When the participants were asked to further explain their reasons for making this sentence, they reported that they transferred the concept of 'put out your imagination' from the concept of 'put out the light', representing 'to stop something burning', which had been introduced in the training session. It seems that the error found in this example may be due to over-generalisation.

6.2 Training Session Two: On-Off in Phrasal Verbs

This section reports the results concerning how Mandarin-speaking L2 learners construct meanings on 'on' and 'off' in phrasal verbs via the cognitive linguistic approach of categorisation. The topic of 'on' and 'off' used in phrasal verbs will be discussed respectively in terms of teaching and learning and the linguistic output produced by the Categorisation Training Group.

6.2.1 Teaching and Learning 'On' in Phrasal Verbs

In Figure 6.4, a radial category diagram illustrating the three-layered-concept phrasal verb 'get on' accompanied by sample sentences (see Appendix I) was introduced to the Categorisation Training Group to assist their learning of 'on' in phrasal verbs. The central meaning of the target particle 'on' was surrounded by the concrete concept of contact/support. Subsequently, the meaning was extended to temporal and metaphorical senses in a way to reflect the abstract concepts.

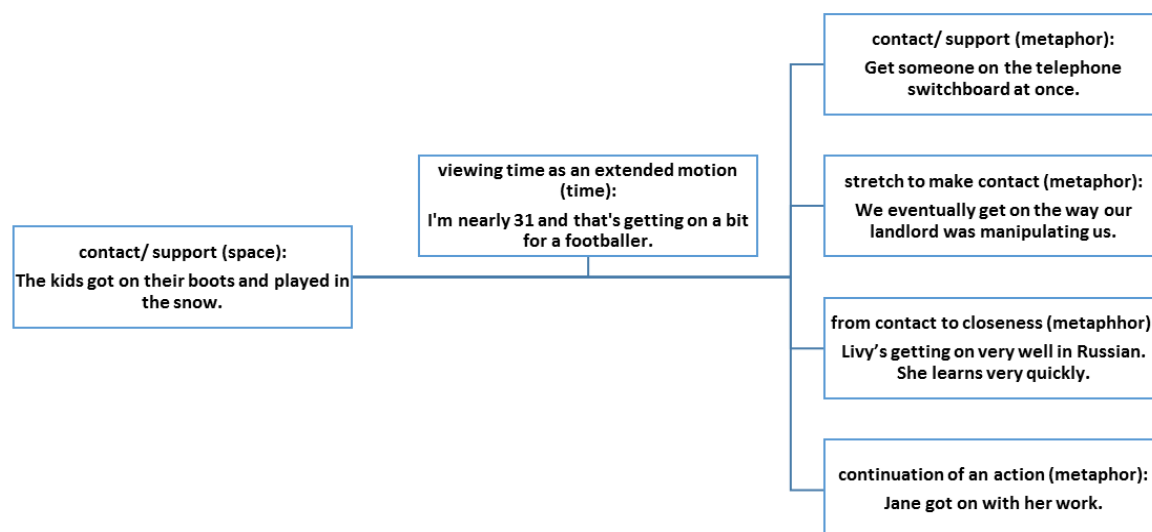


Figure 6.4 A radial category diagram: get 'on'

The findings emerging from the analysis can best be treated under three categories: meanings of space, meanings of time and meanings of metaphor. Two issues were identified relating to meanings of space. First, Participant CG-07 indicated she thought 'get in' should be the correct phrasal verb to be used in the sentence: 'The kids got on their boots and played in the snow.', since the boots can be seen as a container. In order to clarify her confusion between the concepts of 'in' and 'on', the researcher further highlighted the importance of the particle 'on', representing a central meaning of 'making contact'. Following the explanation, Participant CG-07 responded that she understood the meaning as she reported that the boots were in contact with the surface of a human body. If she used 'get in', it would mean that the child got into huge boots big enough to cover a human body.

The second issue relating to the spatial meaning of 'on' was found in the sample sentence: 'This is a brief stop to take on passengers and water.' The majority of the respondents suggested that they were uncertain how to distinguish the meanings between 'getting on' the train and 'getting in' a car, since both phrasal verbs can express the meaning of

boarding a means of transport. Interestingly, the cognitive linguistic approach of categorisation seems to have potential for helping L2 learners to differentiate one meaning from another, as one participant stated below:

- Participant CG-05: 'The reason why a native English speaker uses "getting on" the train is because passengers can walk on the surface inside a train; however, passengers are unable to walk inside a car or a taxi. Therefore, if we say "get on" a car, it will mean walking on the roof of a car.'

As regards the temporal sense of 'on' in phrasal verbs, there was a sense of difficulty amongst participants in understanding the example: 'I'm nearly 31 and that's getting on a bit for a footballer.' Consequently, Rudzka-Ostyn's (2003: 152) meaning category of 'on': 'On: from contact to closeness' was introduced in order for the participants to generate more ideas. One individual described how he constructed meaning on this sample sentence, based on the concept mentioned above:

- Participant CG-05: 'In order to understand "getting on a bit for a footballer", firstly, I used the concept of "getting closer to make contact" in the sample sentence: "This road goes on from here through many more towns before reaching the ocean." Next, I applied this concept of "Time goes on" to figuring out the meaning of "getting on a bit for a footballer". Time is stretching to the end point and 31 is the end point.'

From the above extract, it may be observed that radial categories help L2 learners of English, to some extent, to infer meaning from combining concepts centring 'on'. However, Participant CG-02 raised another issue relating to temporal meanings. He asked how to distinguish the difference between 'on' time and 'in' time. This issue provided participants with the opportunity to have an in-depth discussion of the dissimilarity between the temporal uses of 'on' and 'in'. Talking about this issue, one participant (CG-01) said: "On" time means someone or something arrives exactly at the expected time, but "in" time means time is seen as a container and a moving object is approaching the time container.' It is likely that the theory of categorisation could help L2 learners of English not only acquire a semantic network for one particular phrasal verb, but also discern the meaning patterns between particles in use.

It is argued that L2 learners usually consider abstract senses as difficult items to understand; however, some striking results emerged from the data in that when the participants were asked to identify the metaphorical extensions of some phrasal verbs, the overall response to these questions was positive. Two examples were identified in relation

to this theme. The first example was: ‘Get someone on the telephone switchboard at once.’ Participants CG-01 and CG-14 both commented that ‘on duty’ was the main meaning of this sentence because it expresses the abstract sense that someone is in contact with the job position and does the job.

The second example was to do with the example: ‘Come on Doreen, let’s dance.’ The phrasal verb ‘come on’ applied to this sentence seems easy for Mandarin-speaking L2 learners to understand due to its frequent usage in daily English communication; whereas it contains a figurative sense that is viewed as a thorny issue. Surprisingly, when the participants were asked to identify the meaning extension of this phrasal verb, Participants CG-01 and CG-05 indicated that “‘Come on’ means an attempt to make emotional contact in order to invite someone to join an activity.’ Taken together, these results suggest that some Mandarin-speaking English learners were able to integrate the basic and extended meanings into a coherent whole by utilising the theory of categorisation to conceptualise the meaning of phrasal verbs.

6.2.2 Linguistic Output of ‘On’ in Phrasal Verbs

This section reports the results of recorded linguistic data concerning ‘on’ in phrasal verbs produced by the Categorisation Training Group. Table 6.3 shows an overview of the results obtained from the analysis. The key aspects of the findings can be divided into: the application of spatial senses, temporal senses and metaphorical senses.

Table 6.3 In-class task of using one of ‘on’ in phrasal verbs to make sentences covering meanings of space, time, and metaphor

Participant's Reference	The Chosen Phrasal Verb	Samples
CG-01/CG-02/CG-04	take on	<p>Spatial meaning</p> <ul style="list-style-type: none"> • The train took on some passengers here. <p>Temporal meaning</p> <ul style="list-style-type: none"> • n/a <p>Metaphorical meaning</p> <ul style="list-style-type: none"> • *She took on her job seriously.

CG-03/CG-05/CG-06	come on	<p>Spatial meaning</p> <ul style="list-style-type: none"> • Come on stage and sing. <p>Temporal meaning</p> <ul style="list-style-type: none"> • n/a <p>Metaphorical meaning</p> <ul style="list-style-type: none"> • The show will come on at 8. • *I like to come on happy in front of people.
CG-07/CG-08/CG-09	get on	<p>Spatial meaning</p> <ul style="list-style-type: none"> • He got the ring on my finger. <p>Temporal meaning</p> <ul style="list-style-type: none"> • I am getting on 20. I can vote. <p>Metaphorical meaning</p> <ul style="list-style-type: none"> • I am getting on very well in learning phrasal verbs after I got some trainings.
CG-10/CG-11/CG-12	go on	<p>Spatial meaning</p> <ul style="list-style-type: none"> • This highway goes on to Kenting National Park. <p>Temporal meaning</p> <ul style="list-style-type: none"> • Life goes on. <p>Metaphorical meaning</p> <ul style="list-style-type: none"> • The snow has gone on for a few days.
CG-13/CG-14/CG-15	get on	<p>Spatial meaning</p> <ul style="list-style-type: none"> • Get on the dance floor. <p>Temporal meaning</p> <ul style="list-style-type: none"> • Mary is getting on 50. It's too late to have a baby. <p>Metaphorical meaning</p> <ul style="list-style-type: none"> • I hope to get on well in understanding Buddhism.

Note. * The sentence is grammatically correct; however, it is not natural in English.

In terms of the results of the linguistic data in relation to spatial meanings of 'on' in phrasal verbs, two discrete themes occurred throughout the dataset. First, frequent collocations with 'on' in phrasal verbs were found in association with a means of transport, a human body part and a theatre stage. The conceptual meaning applied to this theme focused on the spatial concept of contact/ support. The second theme of the dataset revealed that some participants (CG-10, CG-11 and CG-12) were able to reproduce the spatial concept

of 'on' representing the sense of extending to make contact as in the sentence: 'This highway goes on to Kenting National Park.'

As far as linguistic production using temporal meanings of 'on' in phrasal verbs is concerned, two sub-types of conceptual metaphor in relation to time were identified. The first type of temporal metaphor was ego-moving metaphor, as can be seen in two examples: (1) 'I am *getting on* 20. I can vote.' (Participants CG-07, CG-08, and CG-09); (2) 'Mary is *getting on* 50. It's too late to have a baby.' (Participants CG-13, CG-14 and CG-15). These two examples suggest that some participants have learned to apply the temporal concept of 'get on' to the conceptual metaphor TIME IS MOVING EGO, something that is reaching its end point, i.e. age. The second type of temporal metaphor was time-moving metaphor that can be seen the example: 'Life *goes on*.' (Participants CG-10, CG-11, and CG-12). In this example, time is viewed as a moving entity to manifest the conceptual meaning of 'continuation'. In Rudzka-Ostyn's (2003: 153) terminology, this conceptual metaphor is also regarded as 'on: continuation of an action or situation'.

Three types of metaphorical use of 'on' in phrasal verbs were identified in the data analysis. They are: semi-abstract contact/ support, abstract contact/ support, and from contact to closeness. Their metaphorical use with examples are shown below:

- Semi-abstract contact/support:
Participant CG-10/ CG-11/ CG-12: 'The snow has gone on for a few days.'
Participant CG-03/ CG-05/ CG-06: 'The show will come on at eight.'
- Abstract contact/ support:
Participant CG-01/ CG-02/ CG-04: 'She took on her job seriously.'
Participant CG-03/ CG-05/ CG-06: 'I like to come on happy in front of people.'
- From contact to closeness:
Participant CG-07/ CG-08/ CG-09: 'I am getting on very well in learning phrasal verbs after I got some trainings.'
Participant CG-13/ CG-14/ CG-15: 'I hope to get on well in understanding Buddhism.'

The metaphorical usage of 'on' in phrasal verbs from the linguistic data analysis tended to replicate the concepts and sample sentences provided in Worksheet 5 (see Appendix I). These results may reflect some findings obtained by the cognitive linguists (Deignan, 2005; Gries, 2006; Littlemore and MacArthur, 2007). Their corpus data reveal that the more metaphorical sense a word has, the more particular or fixed phraseological pattern it involves. Since the metaphorical senses of a phrasal verb is always a hurdle for L2

learners to overcome, it seems necessary to offer explicit teaching of metaphorical extensions of phrasal verbs in the EFL context.

6.2.3 Teaching and Learning 'Off' in Phrasal Verbs

As shown in Figure 6.5 (see Appendix I), a radial category diagram of the phrasal verb 'take off', illustrating three categories of meanings (space, time and metaphor), was given to the Categorisation Training Group to assist their understanding of 'off' in phrasal verbs.

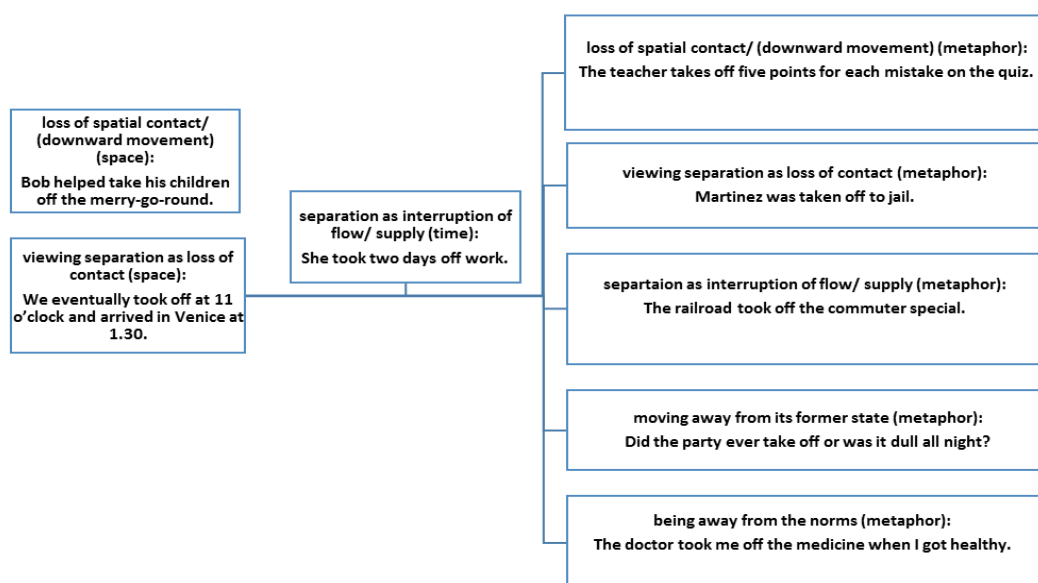


Figure 6.5 A radial category diagram: take 'off'

What is interesting in the results obtained from the data concerning 'off' in phrasal verbs is that two polarized themes recurred from the analysis. One is the opposite meaning construction placed upon 'off' in phrasal verbs between English and Mandarin speakers; the other is the similar perspective shared between English and Mandarin users. This first theme came up in discussion of 'take off' (Figure 6.5). The issue relating to understanding this phrasal verb was raised by one participant, and his data extract is presented below:

- Participant CG-03: 'I do not understand why English native speakers use "taking off" to say an aeroplane starts to fly. I have two reasons. First, "off" has a sense of downward movement that you mentioned in radial categories but after taking off, the aeroplane is supposed to get higher and higher. Second, in Chinese we say "起飛 (literal meaning: *start to fly*)" to express a concept of starting to fly and getting higher and higher. It is a different concept from English. Both reasons have

a meaning of getting higher and higher and it is contrary to the idea of downward movement.'

In response to the question asked by Participant CG-03, two participants offered explanations to help him understand. One participant (CG-05) said: 'Here "off" means leaving the ground.' Another participant (CG-01) added: 'We can see the journey of an aeroplane from point A to B is like a process of continuation, so using "off" here is correct to describe the flow of the journey is interrupted by taking an aeroplane.'

However, one participant elicited a phrasal verb 'kick off' to express his belief that Mandarin Chinese speakers are engaged from a different viewpoint of understanding the meaning of 'off' in a given context. His data extract is provided here:

- Participant CG-12: 'In Chinese, a football phrase "kick off", we say "開球" (literal meaning: *to start a ball*) to mean to start a game. It has a similar meaning to "take off" used in the sentence: "An aeroplane is taking off." In Chinese, we say "起飛" (literal meaning: *to start to fly*). "開" and "起" are more relevant to the meaning of 'on' because in my opinion, "on" means "開" and "起". For example, "Turn on the light." We say "開燈" (literal meaning: *to start a light*).'

From the above response, it can be argued that to some extent when English particle 'off' is used to manifest the concept of commencing an event or an activity, Mandarin Chinese users would adopt the opposite concept of 'off'; that is, the concept of 'on', such as '開' and '起', to express the meaning. Issues relating to this aspect of 'off' in phrasal verbs were particular prominent in the data analysis, as can be seen in Table 6.4.

Table 6.4 Data extracts showing the opposite perspective on 'off' in phrasal verbs between English and Mandarin users

Participant's reference	Sample sentence	Data extract
CG-05	The discount dealer <i>took ten percent off</i> the normal price.	'In English, native speakers use 'off' to describe the percentage that has been removed from the original price, but in Chinese, we

		say the remaining part of the original price.'
CG-07	Did the party ever <i>take off</i> or was it dull all night?	'I will translate the phrasal verb "take off" into Chinese as "氣氛被帶動起來" (meaning: <i>continuation of an action</i>).'
CG-13/ CG-14	Then the fire alarm <i>went off</i> . I just grabbed my clothes and ran out.	'We will translate "went off" into Chinese "響起" because "起" means to "initiate an action".'

In summary, three examples elicited above were to do with the contradictory meaning of 'off' in phrasal verbs between English and Chinese. In English, 'off' can be used to describe initiating an action or an event; whereas, in Mandarin, '起' (meaning 'on') is used to represent the concept of 'off'. The differences between English and Mandarin Chinese in terms of meaning construction may be due to the unique perspective point from which the meaning is constructed (Talmy, 2000).

In contrast to the above results which revealed the different perspective viewpoints of English and Mandarin speakers, this part of the results specified the similar perspective on 'off' shared by these two different language users. In response to the similarity, a range of responses was elicited. Firstly, Participant CG-05 commented: 'Thinking about surfing the Internet, we may say "offline" as "下線" in Chinese. "下" means not being connected to the Internet.' In other words, '下' has a similar meaning to the abstract concept of 'loss of contact'. Secondly, two responses (Participant CG-09 and CG-12) were found in relation to the use of an equivalent Chinese translation '離' (meaning: *to detach one thing from another*) representing the similar meaning for 'off': abstract separation. The examples of these two phrasal verbs along with the Chinese translation are presented as follows:

- Her approach to the issue put off voters. (put off: 悖離)
- Martinez was taken off to jail. (take off: 隔離)

A comparison of the two results reveals that two divergent and conflicting meaning senses of 'off' viewed between English and Mandarin Chinese can lead Mandarin L2 learners to experience difficulty in understanding the particle in phrasal verbs. Raising awareness of

the similarities and differences of meaning construction would exert a positive effect in improving foreign language acquisition.

6.2.4 Linguistic Output of 'Off' in Phrasal Verbs

Table 6.5 provides an overview of the results gathered from the analysis of the linguistic output of 'off' in phrasal verbs. The findings may be divided into three themes: the uses of spatial, temporal and metaphorical senses.

Table 6.5 In-class task of using one of 'off' in phrasal verbs to make sentences covering meanings of space, time and metaphor

Participant's Reference	The Chosen Phrasal Verb	Samples
CG-01/CG-02/CG-04	get off	Spatial meaning <ul style="list-style-type: none"> • Get off the train now. Temporal meaning <ul style="list-style-type: none"> • At nine, I am getting off. Metaphorical meaning <ul style="list-style-type: none"> • Get off your fake mask. I want to see the real you.
CG-03/CG-05/CG-06	go off	Spatial meaning <ul style="list-style-type: none"> • I go off to school at 7. Temporal meaning <ul style="list-style-type: none"> • n/a Metaphorical meaning <ul style="list-style-type: none"> • The situation went off smoothly.
CG-07/CG-08/CG-09	get off	Spatial meaning <ul style="list-style-type: none"> • I got my coat off. Temporal meaning <ul style="list-style-type: none"> • I should get off before 2 pm. Metaphorical meaning <ul style="list-style-type: none"> • I got a letter off to my family.
CG-10/CG-11/CG-12	go off	Spatial meaning <ul style="list-style-type: none"> • The aeroplane went off the end of the runway. Temporal meaning <ul style="list-style-type: none"> • n/a Metaphorical meaning

		<ul style="list-style-type: none"> My car alarm went off, when a motorbike was passing by. A super typhoon hit Taiwan. The streets looked like a bomb had gone off. The performance of Jeremy Lin in this basketball game went off so well. He got 50 points.
CG-13/CG-14/CG-15	get off	<p>Spatial meaning</p> <ul style="list-style-type: none"> Get off the boat. <p>Temporal meaning</p> <ul style="list-style-type: none"> I will get off before teatime. <p>Metaphorical meaning</p> <ul style="list-style-type: none"> I want to get off the subject about you.

When it comes to the spatial meaning of ‘off’ in phrasal verbs, a range of responses was elicited in relation to viewing ‘separation as loss of contact’. Three types of separation were found:

- The separation between the passengers and a public means of transport: ‘Get off the train now.’
- The separation between a human body and a clothing item: ‘I got my coat off.’
- The separation between an object and the ground or the floor: ‘The aeroplane went off the end of the runway.’

Regarding the temporal sense of ‘off’ in phrasal verbs, viewing ‘separation as interruption of flow/ supply’ was the only concept identified in the data analysis. Three examples using ‘get off’ emerged from the data and are presented here:

- Participant CG-01/ CG-02/ CG-04: ‘At nine, I am *getting off*.’
- Participant CG-07/ CG-08/ CG-09: ‘I should *get off* before 2 pm.’
- Participant CG-13/ CG-14/ CG-15: ‘I will *get off* before teatime.’

As far as the metaphorical usage of ‘off’ in phrasal verbs, two types of conceptual metaphor accompanied by their sample sentences were found and they are presented in the following:

- OFF IS LOSS OF CONTACT/ SUPPORT:

Participant CG-10/ CG-11/ CG-12: 'My car alarm went off, when a motorbike was passing by.' 'A super typhoon hit Taiwan. The streets looked like a bomb has gone off.'

Participant CG-13/ CG-14/ CG-15: 'I want to get off the subject about you.'

- OFF IS MOVING AWAY FROM ITS FORMER STATE:

Participant CG-01/ CG-02/ CG-04: 'Get off your fake mask. I want to see the real you.'

Participant CG-03/ CG-05/ CG-06: 'The situation went off smoothly.'

Apart from the above two types of conceptual metaphor, there is another surprising aspect of the data in the sample sentence: 'I got a letter off to my family.' When the respondents were asked to suggest the reasons for producing this example, their explanation was described below:

Participants CG-07, CG-08, and CG-09: "Get off" means sending something off by mail. It gives us some information that something is moving away from something.

We can think of a Chinese translation "寄出" (meaning: *to send away*) for this phrasal verb, because "出" means moving away from something.'

Accordingly, the abstract sense of 'off' representing a meaning of 'moving away' was used in the sentence. Interestingly, the Chinese character '出' encompasses the concepts of 'off' and 'out', depending on the given context. The results suggest that some participants were able to process in-depth information when it comes to the application rather than simply adopting language transfer.

6.3 Training Session Three: Up-Down in Phrasal Verbs

The final training session was concerned with two orientation particles: 'up' and 'down' in phrasal verbs. The key aspects of the results are reported as follows: teaching and learning 'up' in phrasal verbs, linguistic output of 'up' in phrasal verbs, teaching and learning 'down' in phrasal verbs, and linguistic output of 'down' in phrasal verbs.

6.3.1 Teaching and Learning 'Up' in Phrasal Verbs

In order to help the Categorisation Training Group acquire the different senses of 'up' in phrasal verbs via the cognitive linguistic approach of categorisation, a radial category diagram of the phrasal verb 'take up' was presented and can be seen in Figure 6.6 (see Appendix L).

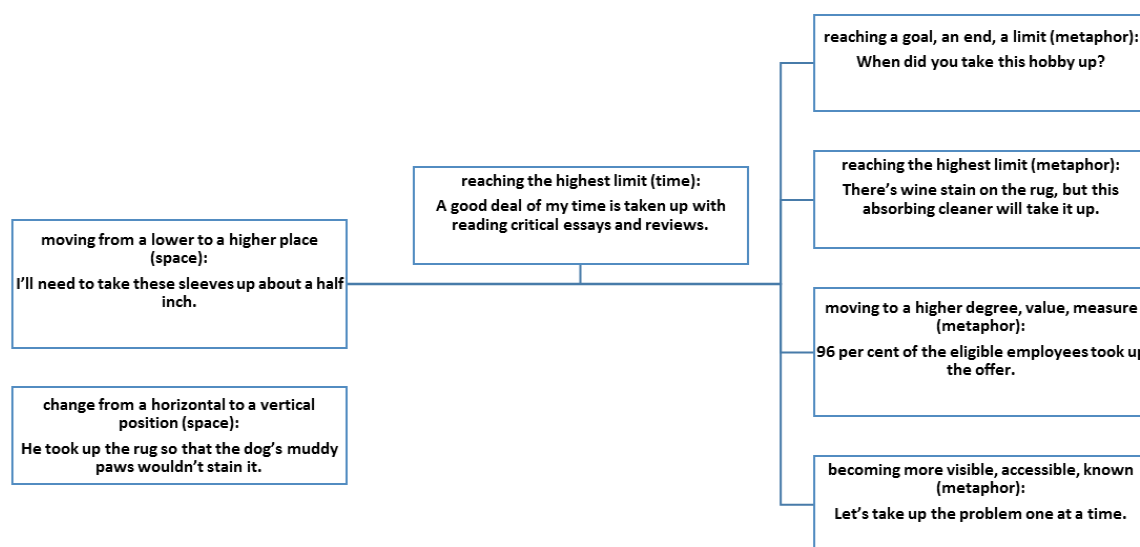


Figure 6.6 A radial category diagram: take 'up'

The findings emerging from the analysis can be considered under two main themes: (1) understanding by coming up with more examples based on the sample sentences; (2) understanding by using equivalent Chinese translations. When it comes to the first theme, participants were observed to come up with more examples responding to making sense of the sample sentence introduced in the training session. There were four types of meanings of 'up' (Rudzka-Ostyn, 2003) emerged from the data. The data extracts are presented below:

- Moving from a lower to a higher place:
Participant CG-01: 'Break *up*.'
Participant CG-02: 'It's *up* to you, grow *up* and bring *up*.'
- Reaching the highest limit:
Participant CG-05: 'Time is *up*.'
- Reaching a goal, an end, a limit:
Participant CG-01: 'Pick *up*.'
Participant CG-07: 'Meet *up*.'
- Becoming more visible, accessible, known:

Participant CG-05: 'Make *up* (put on cosmetics).'

Participant CG-07: 'What's *up*?'

The second theme was associated with the equivalent Chinese translations in response to the sample sentences given in the worksheet. Interestingly, a wide range of responses was elicited and compiled in Table 6.6.

Table 6.6 'Up' with the equivalent Mandarin Chinese translated by the Categorisation Training Group

Meaning	English Example	Chinese Translation of 'Up' in Phrasal Verbs
Space	• I'll need to <u>take</u> these sleeves <u>up</u> about a half inch.	提 <u>上</u>
	• He <u>took up</u> the rug so that the dog's muddy paws wouldn't stain it.	<u>立</u> 起來
	• I will be so great watching the sun <u>come up</u> .	<u>上</u> 昇
	• The monkey <u>went up</u> the tree in no time.	爬 <u>上</u>
	• Can you <u>get</u> yourself <u>up</u> , or should I call you?	<u>起</u> 來
	• He was <u>putting up</u> a new fence at his home.	<u>立</u> 起來
Time	• A good deal of my time <u>is taken up</u> with reading critical essays and reviews.	佔 <u>盡</u> ; 佔 <u>滿</u>
	• My new calendar only <u>goes up</u> to December.	排 <u>滿</u>
	• I wouldn't want to <u>take up</u> too much of your time.	佔 <u>盡</u> ; 佔 <u>滿</u>
Metaphor	• There is wine stain on the rug, but this absorbing cleaner will <u>take</u> it <u>up</u> .	吸 <u>光</u>
	• We <u>came up</u> to Canada to look for wolves.	北 <u>上</u>
	• Gasoline prices are still <u>going up</u> .	<u>上</u> 漲
	• Let's <u>get</u> a team <u>up</u> and enter the tournament.	提 <u>升</u> 士氣

-
- I can't put up with that awful noise from next 受夠 door.
-

The Chinese characters underlined (see Table 6.6) reflect the different meaning senses of 'up' in terms of three meaning categories. '上', '立', '起', and '昇' were used to represent the spatial meaning of 'up' in the sense of 'moving from a lower to a higher place or changing from a horizontal to a vertical position'. '盡' and '滿', were used to describe the temporal meaning of 'up' representing a concept of 'reaching the highest limit or a completed state'. When it comes to the meaning of metaphor, it can be divided into two sub-categories. First, '上' and '升' can be used to express the abstract concept of 'moving to a higher degree, value, measure'. Additionally, '上' can also be used to describe a conceptual metaphor: NORTH IS UP. Second, '光' and '夠' depict the abstract usage of 'reaching the highest limit'. Overall, '上' was found as the commonest Chinese character responding to the English particle 'up', covering the central and peripheral meanings.

6.3.2 Linguistic Output of 'Up' in Phrasal Verbs

This section reports the results gathered from the linguistic data of 'up' in phrasal verbs, as shown in Table 6.7.

Table 6.7 In-class task of using one of 'up' in phrasal verbs to make sentences covering meanings of space, time and metaphor

Participant's Reference	The Chosen Phrasal Verb	Samples
CG-01/CG-02/CG-04	put up	<p>Spatial meaning</p> <ul style="list-style-type: none"> • Put up the signpost on the road. • The team put the advertisement up in order to attract more attention. <p>Temporal meaning</p> <ul style="list-style-type: none"> • n/a <p>Metaphorical meaning</p> <ul style="list-style-type: none"> • I can't put up with my neighbour anymore. • He put himself up for earning a good reputation.

CG-03/CG-05/CG-06	come up	Spatial meaning <ul style="list-style-type: none"> • Please come up the hill. Temporal meaning <ul style="list-style-type: none"> • n/a Metaphorical meaning <ul style="list-style-type: none"> • The new drama is coming up soon.
CG-07/CG-08/CG-09	go up	Spatial meaning <ul style="list-style-type: none"> • I went up this building. Temporal meaning <ul style="list-style-type: none"> • My guitar lesson goes up to the summer holidays. Metaphorical meaning <ul style="list-style-type: none"> • I will go up to Taipei this weekend.
CG-10/CG-11/CG-12	get up	Spatial meaning <ul style="list-style-type: none"> • Get up, please. • Get the pen up. Temporal meaning <ul style="list-style-type: none"> • n/a Metaphorical meaning <ul style="list-style-type: none"> • Get yourself up for this project. We are nearly there. • Get up! You have slept too much.
CG-13/CG-14/CG-15	go up	Spatial meaning <ul style="list-style-type: none"> • Go upstairs! Temporal meaning <ul style="list-style-type: none"> • This semester only goes up to June. Metaphorical meaning <ul style="list-style-type: none"> • The number of the refugees is still going up.

This table is quite revealing in the three meaning categories employed throughout the dataset. First, the overall response to the linguistic output relating to the spatial sense of 'up' was positive. Second, two examples in conjunction with temporal meaning were identified. Third, five metaphorical senses of 'up' were found. The results of the linguistic data from the analysis are summarised below:

- Spatial meaning: moving from a lower to a higher place
Participant CG-01/ CG-02/ CG-04: 'Put up the signpost on the road.'

Participant CG-03/ CG-05/ CG-06: 'Please come up the hill.'

Participant CG-07/ CG-08/ CG-09: 'I went up this building.'

Participant CG-10/ CG-11/ CG-12: 'Get the pen up.'

- Temporal meaning: reaching the highest limit

Participant CG-07/ CG-08/ CG-09: 'My guitar lesson goes up to the summer holidays.'

Participant CG-13/ CG-14/ CG-15: 'This semester only goes up to June.'

- Metaphorical meaning: reaching the highest limit

Participant CG-01/ CG-02/ CG-04: 'I can't put up with my neighbour anymore.'

- Metaphorical meaning: becoming more visible, accessible, known

Participant CG-03/ CG-05/ CG-06: 'The new drama is coming up soon.'

- Metaphorical meaning: reaching a goal, an end, a limit

Participant CG-01/ CG-02/ CG-04: 'He put himself up for earning a good reputation.'

Participant CG-10/ CG-11/ CG-12: 'Get yourself up for this project. We are nearly there.'

- Metaphorical meaning: NORTH IS UP

Participant CG-07/ CG-08/ CG-09: 'I will go up to Taipei this weekend.'

- Metaphorical meaning: moving to a higher degree, value, measure

Participant CG-13/ CG-14/ CG-15: 'The number of the refugees is still going up.'

These results showed that the overall response to the linguistic data was positive. However, some participants reported that they still found it difficult to produce examples of a variety of uses. For instance, they felt that they were confused over the multiple meanings of the main verb within a phrasal verb. When it comes to understanding a phrasal verb, the semantic value of the main verb within a phrasal verb is also crucial. Unfortunately, this study only focuses on analysing the impact of the particles. The issue of understanding the main verbs remains unanswered at present. Further work will be required to establish this.

6.3.3 Teaching and Learning 'Down' in Phrasal Verbs

A radial category diagram (see Appendix L) was used to introduce different senses of the phrasal verb 'go down', as shown in Figure 6.7. A range of meaning senses: two spatial, one temporal, and four metaphorical concepts was elicited.

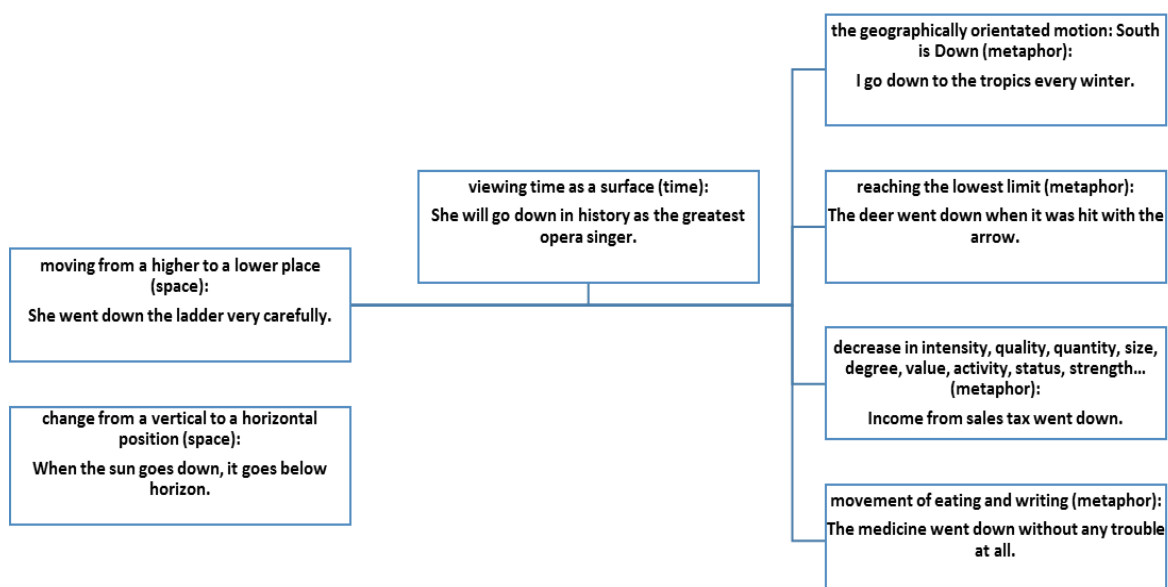


Figure 6.7 A radial category diagram: go ‘down’

Three themes emerged from the analysis. The first was understanding a phrasal verb by drawing inferences. The second was a sample sentence that was identified as being particularly difficult for Mandarin-speaking English learners to understand. The third was equivalent Chinese translations of ‘down’ in phrasal verbs.

With regard to the first theme, participants were asked to explain how they constructed meanings on ‘go down’ in the sample sentence: ‘The medicine went down without any trouble at all.’ Some participants responded that they used a similar phrasal verb ‘swallow down’ to understand this phrasal verb because it represented ‘a downward movement from a person’s mouth to the stomach’. Participant CG-07 provided another interesting explanation when she commented: ‘I used the opposite phrasal verb “throw up” to understand “go down”, because I already knew the meaning of “throw up”.’

The second example relating to the first theme was found in the sample sentence: ‘She will go down in history as the greatest opera singer.’ Below two participants explained how they understood the above sentence:

- Participant CG-01: ‘Time is viewed as the flow of the river. The past generation is on the upper part of the river.’
- Participant CG-10: ‘Our ancestors are the upper generation and we are the lower generation.’

These two data extracts suggested that the participants understood the temporal meaning of ‘go down’ by making inferences from the spatial concept of ‘down’ as ‘moving from a higher to a lower place’. Taken together, these results are in line with those of previous studies (Lakoff & Johnson, 1980; 2003), which suggest that people understand abstract ideas by means of understanding concrete concepts.

The second theme that emerged from the analysis is the issue relating to the sample sentence: ‘He bought an investment property for \$100,000 and put down \$20,000.’ This was identified as a difficult item for Mandarin-speaking English learners to comprehend. Talking about this issue, one participant (CG-03) said ‘I think “put down” means the price is going down because “down” means something is decreasing. The house is at a discount price.’ Another participant (CG-05) put it similarly: ‘It means getting a lower price.’ In order to help the participants grasp the correct meaning, the researcher highlighted the abstract sense of ‘down’ as ‘reaching the lowest limit’ provided above (see Figure 6.7). Subsequently, some of the participants expressed their opinion in response to this meaning sense. Participant CG-04 said: ‘I think it means down payment, the first instalment. “Down” means the lowest limit.’ Another Participant (CG-10) also commented: ‘English usage of “down” is more precise than Chinese usage. In Chinese, we say “頭期款” (meaning: *the first instalment*). It does not reflect any meaning of “down” to say the lowest limit.’ These results suggested that introducing radial categories of a phrasal verb in the EFL classroom might have two beneficial effects. One is to facilitate L2 learners to understand that there exist some types of unique meaning construction between two languages, and the other is to help avoid the pitfall of false equivalencies.

The third theme of the results surfaced in the respect of equivalent Chinese translations of ‘down’ in phrasal verbs as suggested by the majority of participants. The Chinese translations responding to the senses of ‘down’ in phrasal verbs were compiled and shown in Table 6.8.

Table 6.8 ‘Down’ with the equivalent Mandarin Chinese translated by the Categorisation Training Group

Meaning	English Example	Chinese Translation of the Phrasal Verbs with ‘Down’
Space	• She <u>went down</u> the ladder very carefully.	下樓梯
	• When the sun <u>goes down</u> , it goes below horizon.	下山

	• The cold rain <u>came down</u> .	下雨
	• <u>Get</u> your head <u>down</u> .	趴下
	• They <u>put</u> the boxes <u>down</u> on the floor.	放下
	• Gil rose and went to his bookcase and <u>took down</u> a volume.	拿下; 取下
Time	• She will <u>go down</u> in history as the greatest opera singer.	留下歷史
Metaphor	• I <u>go down</u> to the tropics every winter.	南下
	• The deer <u>went down</u> when it was hit with the arrow.	倒下死亡
	• Income from the sales tax <u>went down</u> .	下跌
	• The medicine <u>went down</u> without any trouble at all.	吞下; 服下
	• All my silverware <u>came down</u> to me from my great-grandmother.	留傳下來
	• <u>Get</u> your head <u>down</u> , you stayed up so late last night.	躺下休息
	• He bought an investment property for \$100,000 and <u>put down</u> \$20,000.	投下頭期款
	• I <u>took down</u> his comments in shorthand.	記下; 寫下

The Chinese characters were underlined (see Table 6.8) to reflect three meaning senses of ‘down’ in phrasal verbs. The most surprising aspect of the data is that only one Chinese character ‘下’ (meaning: *downward*) was used to express all the meanings relating to ‘down’ in phrasal verbs presented above. This finding suggests that a similar concept of ‘down’ is shared between English and Mandarin users. Comparing this with other particles investigated in this study, the language transfer of ‘down’ in phrasal verbs may shed light on facilitating Mandarin L2 learners’ understanding and memory retention of particles in phrasal verbs during the learning process.

6.3.4 Linguistic Output of ‘Down’ in Phrasal Verbs

Table 6.9 shows the results obtained from the analysis of the linguistic output of ‘down’ in phrasal verbs. The table reveals some of the main characteristics of the examples that the participants produced by exploiting three meaning categories.

Table 6.9 In-class task of using one of 'down' in phrasal verbs to make sentences covering meanings of space, time and metaphor

Participant's Reference	The Chosen Phrasal Verb	Samples
CG-01/CG-02/CG-04	put down	<p>Spatial meaning</p> <ul style="list-style-type: none"> Put down on your knees. <p>Temporal meaning</p> <ul style="list-style-type: none"> n/a <p>Metaphorical meaning</p> <ul style="list-style-type: none"> Don't put everything down because of your bias. The shop owner put the price of the bag down.
CG-03/CG-05/CG-06	take down	<p>Spatial meaning</p> <ul style="list-style-type: none"> Please take my dress down from the shelf. <p>Temporal meaning</p> <ul style="list-style-type: none"> n/a <p>Metaphorical meaning</p> <ul style="list-style-type: none"> I took down some notes during the seminar.
CG-07/CG-08/CG-09	take down	<p>Spatial meaning</p> <ul style="list-style-type: none"> n/a <p>Temporal meaning</p> <ul style="list-style-type: none"> n/a <p>Metaphorical meaning</p> <ul style="list-style-type: none"> I took down some medicine. I took down a lot of notes during the lesson.
CG-10/CG-11/CG-12	get down	<p>Spatial meaning</p> <ul style="list-style-type: none"> Get down! Someone is shooting. Get down from the roof. <p>Temporal meaning</p> <ul style="list-style-type: none"> n/a <p>Metaphorical meaning</p> <ul style="list-style-type: none"> The bad weather gets people down. Due to the inflation, the stock price is 'getting down.

CG-13/CG-14/CG-15	go down	<p>Spatial meaning</p> <ul style="list-style-type: none"> • The whole village went down in the flood. <p>Temporal meaning</p> <ul style="list-style-type: none"> • Einstein has gone down in history as one of the most famous scientist. <p>Metaphorical meaning</p> <ul style="list-style-type: none"> • The students went down in a contest. • The price of the goods went down last month. • He went down to Kaohsiung every Chinese New Year.
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Note. ² Incorrect usage

First, in terms of the usage of spatial sense, the majority of participants employed a basic concept of downward movement. Second, due to the limited sample sentences available in conjunction with the temporal meaning, only one group of participants used 'go down' to view time as a surface. Lastly, five types of conceptual metaphor were identified in a range of sentences made by the participants. The details of the linguistic examples concerning the three meaning categories are summarised in the following:

- Spatial meaning: moving from a higher to a lower place
Participant CG-01/ CG-02/ CG-04: 'Put down on your knees.'
Participant CG-03/ CG-05/ CG-06: 'Please take my dress down from the shelf.'
Participant CG-10/ CG-11/ CG-12: 'Get down from the roof.'
Participant CG-13/ CG-14/ CG-15: 'The whole village went down in the flood.'
- Temporal meaning: viewing time as surface
Participant CG-13/ CG-14/ CG-15: 'Einstein has gone down in history as one of the most famous scientists.'
- Metaphorical meaning: SOUTH IS DOWN
Participant CG-13/ CG-14/ CG-15: 'He went down to Kaohsiung every Chinese New Year.'
- Metaphorical meaning: UNHAPPY IS DOWN
Participant CG-10/ CG-11/ CG-12: 'The bad weather gets people down.'
- Metaphorical meaning: THE LOWEST POINT IS DOWN
Participant CG-01/ CG-02/ CG-04: 'Don't put everything down because of your bias.'
- Metaphorical meaning: DECREASE IS DOWN
Participant CG-01/ CG-02/ CG-04: 'The shop owner put the price of the bag down.'

Participant CG-13/ CG-14/ CG-15: 'The students went down in a contest.' 'The price of the goods went down last month.'

- Metaphorical meaning: EATING OR WRITING IS DOWN

Participant CG-03/ CG-05/ CG-06: 'I took down some notes during the seminar'.

Participant CG-07/CG-08/ CG-09: 'I took down some medicine.' 'I took down a lot of notes during the lesson.'

One error was detected in the dataset, and can be seen in the sentence 'Due to the inflation, the stock price is 'getting down.' produced by Participants CG-10, CG-11, and CG-12 (see Table 6.9). The respondents were asked to suggest their reasons for making this sentence. They said that they simply wanted to express the meaning of decreasing in value; however, the incorrect usage of phrasal verb in this case may be a consequence of their lack of vocabulary. In other words, it seems that the difficulty in using an accurate phrasal verb, in terms of a combination of a main verb and its particle, is another obstacle for L2 learners to overcome. Further research regarding the role of the main verbs within phrasal verbs would be worthwhile.

Having reported how to construct meanings on six target particles in phrasal verbs via the cognitive linguistic approach of categorisation, the next section of this chapter provides an initial discussion concerning the use of the cognitive linguistic approach of categorisation in the acquisition of particles in phrasal verbs.

6.4 Initial Discussion of Categorisation Employed in Learning Particles in Phrasal Verbs

This chapter set out with the aim of assessing the importance of facilitating the cognitive linguistic approach of categorisation in teaching and learning particles in phrasal verbs. The introductory section provides the results emerging from analysis of the three training sessions designed to explore how to assist Mandarin Chinese-speaking English learners' acquisition of particles in phrasal verbs. It then goes on to discuss in general the findings presented in the previous sections of this chapter.

The purpose of adopting three training sessions was to describe how participants in the Categorisation Training Group constructed meanings on particles in phrasal verbs. The results revealed two key aspects of the data: the similar and unique meanings that L2 learners and native English speakers construct on particles in phrasal verbs.

Little research, according to Ellis (2008) and Gass & Selinker (2008), has paid attention to the important fact that similar meaning construction between two languages can shed a light on best assisting L2 learners to acquire a foreign language. However, in this study,

similar meaning construction between English and Mandarin Chinese were to some extent found beneficial to understanding particles in phrasal verbs. Two types of effect resulted when participants undertook the three training sessions. These were: positive language transfer and conceptualising abstract ideas based on concrete information. Concerning the first effect, the results revealed that some equivalences were identified in response to English particles in use. For example, ‘出來’ is equal to ‘out’, ‘離’ is equivalent to ‘off’, ‘上’ is similar to ‘up’, and ‘下’ is identical to ‘down’. What is more, these Chinese equivalencies were also considered as prototypical meanings when participants were asked to provide a Chinese translation to the particles. Another important finding was that ‘上’ (see Table 6.6, p.151) and ‘下’ (see Table 6.8, p.156) can be applied to a wide range of examples, ranging from basic to extended meanings of particles. As regards the second effect, while participants were asked to explain how they conceptualised the English idiom ‘go down in history’, some of those who responded that they employed L1 encyclopaedic knowledge, such as considering ancestors as the ‘upper’ generation, to make sense of this fixed expression.

As for unique meaning construction found in the dataset, the results show that applying the cognitive linguistic approach to learning particles in phrasal verbs requires more cognitive effort by L2 learners if they are to process deeper information. An example can be seen in the data presented in Section 6.1.1, where Participant CG-05 was better able to make sense of the sample sentence than other participants were. One possible factor could be an individual variation in metacognition, namely better in-depth analysis.

In addition to the greater cognitive effort required, the findings also revealed that participants encountered difficulty, such as confusion over the use of particles and misunderstanding or non-understanding of the metaphorical senses of ‘personification’. Even so, the results showed that the cognitive linguistic approach of categorisation could be useful in helping L2 learners overcome linguistic barriers. There were four types of such usefulness found in the dataset. First, the results (see Section 6.3.1) indicated that the participants were able to come up with more examples of using ‘up’ by means of reasoning when a sample of a radial category diagram was used for teaching. Second, the majority of participants reported that the sample sentence: ‘I’m nearly 31 and that’s getting on a bit for a footballer.’ was difficult to understand. After a radial category diagram of the phrasal verb ‘get on’ was highlighted in order for the participants to trigger more of their sense-making, it seems that using a semantic model helps L2 learners to account for the polysemous meanings of phrasal verbs in a way that confirms Littlemore’s (2009: 87-88) suggestion about the encyclopaedic knowledge taught in a foreign language

classroom. For instance, teachers can prepare students with fuzzy categories of meaning that help them to acclimatise to different contexts of vocabulary usage. Third, it can be argued that the cognitive linguistic approach of categorisation helps L2 learners discern the patterns of meaning. This type of method came up for example in discussion of 'off' in phrasal verbs. The results suggest that some phrasal verbs, such as 'go off', 'take off' and 'kick off' are used to describe a meaning of 'to start something'; whereas, Mandarin Chinese native speakers use 'on' (e.g. '開' or '起' were found to reflect the meaning of 'to start something'.) to conceptualise similar situations. Lastly, it is interesting to note that while participants were asked to explain how they constructed meanings on a sample sentence: 'He bought an investment property for \$100,000 and put down \$20,000.', the results reported that they were aware of the meaning of 'put down' that is different between English and Mandarin Chinese. An implication for this is the possibility that raising EFL learners' awareness of the unique meaning construction between two languages can help avoid false equivalencies.

Turning now to the linguistic evidence, the overall results were encouraging in that the majority of participants were able to replicate or extend the concepts they obtained from the training sessions in order to develop a greater understanding of particles in phrasal verbs. Surprisingly, in the analysis of the linguistic output in relation to 'on' in phrasal verbs, two temporal metaphors, ego-moving metaphor and time-moving metaphor, were identified. A possible explanation for this is that the participants were already familiar with these types of abstract usage of 'on' in phrasal verbs. What is more, contrary to expectations this study found that a wide range of conceptual metaphors were applied to linguistic production. These findings may provide EFL teachers with important insights into their pedagogical designs; that is, explicit teaching can better help learners to acquire multiple meanings of particles in phrasal verbs.

Explicit teaching may have a beneficial effect on uncovering hidden obstacles that EFL learners might need to overcome (Littlemore, 2009). It can thus be suggested that in this study, three types of error were made when participants were asked to complete the in-class tasks. These were:

- Unnatural usage: 'A day takes in 24 hours.'
- Misuse of the phrasal verb: '...?put out your imagination...'
- Misuse of the main verb within a phrasal verb: 'Due to the inflation, the stock price is ?getting down.'

Detailed discussion of these errors has been given in Section 6.1 and 6.3. The reason for these errors made is not clear but it is probably due to over-generalisation and a lack of L2 vocabulary for phrasal verbs.

This chapter has reported the results of employing the cognitive linguistic approach of categorisation in the EFL context. In the next chapter, I will present the main findings concerning the use of the cognitive linguistic approach of frame semantics on the impact of teaching and learning particles in phrasal verbs. An overall evaluation of the three cognitive linguistic approaches adopted in this study will be provided in Chapter 9.

Chapter 7 The Use of Cognitive Linguistic Approach of Frame Semantics—Findings and Discussion

This chapter reports the results of the cognitive linguistic approach of frame semantics in the context of acquiring particles on phrasal verbs, and it covers the data collected from the three training sessions. The results presented in this chapter are further compared with those in Chapters 4, 5, 6, and 8 in order for the researcher to evaluate comprehensively the three cognitive linguistic approaches employed in this study, and answer research question two. The entire assessment of the three cognitive linguistic approaches will be discussed in Chapter 9.

Of the 18 participants who were recruited in the Frame Semantics Training Group, 9 were undergraduates and 9 postgraduates either in the UK or Taiwan universities. All of the participants voluntarily participated in this study and share the same first language, i.e. Mandarin Chinese. Additionally, all the participants have at least 5-year experience of English learning. The biodata details of participants in the Frame Semantics Training Group are presented in Table 4.1 (p.69).

The data sources of this chapter were collected from: (1) the video recordings and (2) the recorded linguistic output of three training sessions with the cognitive linguistic approach of frame semantics during the three training sessions had been conducted. On account of the factors of reliability and validity, the data collection and data analysis of this cognitive linguistic approach followed the same procedures as those in the cognitive linguistic approaches of image schemas and categorisation adopted in this thesis. The details of how the researcher collected and analysed the data can be referred to in Section 3.2 and 3.3.

Three sets of opposite particles in phrasal verbs, i.e. 'in-out' in phrasal verbs, 'on-off' in phrasal verbs, and 'up-down' in phrasal verbs were the three major topics introduced respectively in the training sessions. The procedures for teaching particles in phrasal verbs to this training group were the same as in the other two training groups and the details are to be found in the introductory section of Chapter 5.

A set of worksheets (see Appendix G, J, and M) was designed to address the focus of each training session, and the content of each worksheet covered four sections as follows:

- a list of 10 target phrasal verbs
- two frame semantic tables, each of which illustrated a chosen phrasal verb embedded in the sentence contexts

- a table of examples covering meanings of space, time and metaphor
- two in-class tasks designed to ask participants to complete a story by using a set of given phrasal verbs

The second and fourth section (the semantic table and the in-class task) were particularly designed for the application of the theory of frame semantics (Fillmore, 1975, 1977, 1982, 1985a; Fillmore & Atkins, 1992). The second section of the worksheet aimed to explore the use of semantic frames as the basic model of knowledge representation that would allow participants to generate new inferences or meaning construction on particles in phrasal verbs. In terms of the fourth section of the worksheet, participants were offered a real-time opportunity to practise the phrasal verbs instructed by producing linguistic output. Overall, the purpose of using the worksheets in the three training sessions was to illuminate to what extent the cognitive linguistic approach of frame semantics can facilitate Mandarin-speaking English learners to construct meanings on phrasal verbs by understanding their combined particles.

The subsequent Sections 7.1 to 7.3 report the results of all the training sessions comprising these three topics. Section 7.1 encompasses the results of 'in-out' in phrasal verbs. Section 7.2 covers the results of 'on-off' in phrasal verbs. Section 7.3 involves the results of 'up-down' in phrasal verbs. Each section presents two opposite particles in phrasal verbs and highlights the importance of two aspects surrounding the target particle in phrasal verbs: (1) teaching and learning particles in phrasal verbs, and (2) L2 learners' linguistic output.

7.1 Training Session One: In-Out in Phrasal Verbs

This section begins with reporting the procedure for teaching the Frame Semantics Training Group to learn 'in' and 'out' in phrasal verbs before addressing the details of their linguistic output relevant to the themes. All the sample sentences discussed in this section are shown in Worksheet 3 (see Appendix G).

7.1.1 Teaching and Learning 'In' in Phrasal Verbs

A frame semantic table shown below in Table 7.1. (see Appendix G) was designed to explain the connotations of words, the flexibility of language, and different meaning senses surrounding the phrasal verb 'put in' as an example to the Frame Semantics Training Group in order to teach the use of 'in' in phrasal verbs. Three themes came up in discussion of 'in' in phrasal verbs.

Table 7.1 A frame semantic table: put 'In'

situation	Who	put in	whom/ what	why
space	The electrician	put in	a new outlet	for the building
time	Wade	put in	40 hours	for a salary
metaphor	I	put in	a good word for you	for giving a piece of advice

When it comes to the first theme of 'in' in phrasal verbs relating to the meanings of space, a number of issues were identified. The results showed that there was some confusion about the following two sample sentences:

- 'Big waves will come in for some time after the storm.'
- 'The sun went in, and the breeze became cold.'

The majority of respondents commented that they could not identify the connotations of the particle 'in' in these two sentence contexts. In order to trigger their inferences, I highlighted the cause-and-effect relationship embedded in the above two examples. Some participants then suggested 'Big waves will come in the shorelines.' in response to their understanding of the first example. However, they also expressed the belief that 'In Chinese, we say big waves will come "up".' They explained that the different usage of particles in English and Mandarin Chinese led them to misunderstand the meaning of this sentence, in particular.

With regard to the second example above, some participants reported that 'The sun went into the clouds, so the wind became cold.' to reflect their understanding. One individual (Participant FS-14) added that 'To find out the subject of this sentence is important. In Chinese, we say the clouds are covering the sun to describe the cloudy weather. The clouds are the subject and the sun is the object.' It is difficult to explain these results, but it might be that these L2 learners' L1 mental lexicon, and the differences between their L1 and L2 mental lexicon, caused them difficulty understanding the phrasal verbs.

The second theme was associated with the temporal meaning found in the sample sentence: 'Wade was going to be paid a salary, instead of by the hour, whether he put in forty hours or not.' When the Frame Semantic Training Group were asked whether they understood this given sentence, the majority responded that it was difficult for them to grasp the meaning. Therefore, a conceptual metaphor: TIME IS MONEY was used to help the participants make sense of the phrasal verb 'put in'. The overall response to the understanding of this sentence via this conceptual metaphor was positive, since it is a universal concept shared between two cultures.

The third theme was the metaphorical meanings to do with the following two examples:

- 'I explained the procedure to the new mechanic many times, but it didn't go in.'
- 'Will you put in a good word for me at the next meeting?'

Metaphorical senses require L2 learners to make more cognitive efforts to understand them. The use of language transfer can play a crucial role in triggering L2 learners to identify more analogies. For example, Participant FS-16 provided a Chinese translation equivalent to the first sample sentence. However, the movement of the particle 'in' could indicate the opposite directions between English and Mandarin Chinese, as Participant FS-16 explained that 'I would translate "go in" into "聽進去" (literal meaning: *hear into*). In Chinese, the subject is the person who absorbs the information, but in English, the information becomes the subject that moves into someone's ears.'

When the participants were asked to come up with a Chinese translation of the phrasal verb 'put in' in the second example mentioned above, the overall response was poor. However, it was encouraging that Participant FS-17 compared English and Mandarin Chinese and elicited some relevant examples by drawing inferences from 'in' in this phrasal verb. She suggested that "...put in a good word..." means positive. I can't figure out any Chinese translation, but I can say "陷入" (meaning: *fall in*) to translate "in" in the phrases of "in" love, "in" trouble, and "in" crisis. The Chinese character "入" can be applied to these examples.' Despite the difficulty language transfer can, to some extent, have a beneficial effect on helping L2 learners to draw inferences.

7.1.2 Linguistic Output of 'In' in Phrasal Verbs

The linguistic data concerning 'in' in phrasal verbs was analysed and compiled in Table 7.2 below. Three major themes emerged from the analysis: the application of spatial meanings, the application of temporal meanings and the application of metaphorical meanings.

Table 7.2 In-class task of using phrasal verbs with 'in' to write a story

Participant's Reference	Story
FS-01/FS-02/FS-03	When the sunshine <u>went in</u> the room, Bob <u>came in</u> the room feeling upset and said he <u>got</u> himself <u>in</u> the first job interview. Unfortunately, the company didn't <u>take him in</u> . He was so disappointed; as a result, we <u>put in</u> our efforts to encourage him and bring his confidence back for the next challenge.
FS-04/FS-05/FS-06/FS-07	We <u>got in</u> on time and she <u>took us in</u> the building. When I saw her, the first idea <u>went in</u> to my mind was that she is a caring and focused person. She <u>put in</u> lot of efforts to make us understand. There were some new ideas <u>coming in</u> what we should learn.
FS-08/FS-09/FS-13	It was a sunny morning, but in the afternoon, the sun <u>went in</u> and the weather became cold. John went to school and <u>?came in</u> the student restaurant. He <u>put</u> his favourite food <u>in</u> the dish. Then he <u>got</u> a cup of milk <u>in</u> . He <u>went in</u> the classroom and <u>?took</u> his book <u>in</u> the drawer.
FS-10/FS-11	This summer, I <u>put in</u> two weeks to join the summer camp. At first, when I <u>came in</u> , a remarkable conference was beginning. The conference almost <u>took in</u> 200 people. I was nervous to talk to people, but the mentor let me <u>go in</u> with the first team and we started to introduce ourselves. Then, I met Sarah. She was so cute. After this summer camp, we fell in love. We will <u>get in</u> trouble soon.
FS-12	When the sun <u>went in</u> , the rain <u>?came in</u> . Then we <u>got in</u> the classroom, where could <u>took in</u> a lot of students. Then the teacher <u>?put in</u> the light.
FS14/FS-15/FS-18	The company <u>got</u> me <u>in</u> joining an event. I <u>came in</u> with some co-workers to join a party. The sun <u>?got in</u> from the window. We <u>took in</u> some drinks but didn't <u>put</u> money <u>in</u> .
FS-16/FS-17	The typhoon is <u>?coming in</u> Taiwan. The sun will <u>go in</u> and the weather will become worse. The Government <u>put in</u> 2 weeks to build a shelter where could <u>take in</u> at least 20,000 people. The residents who live near the coast must <u>get in</u> before midnight.

Note. [?] Incorrect usage

When it comes to the application of spatial meanings of 'in' in phrasal verbs, the majority of the linguistic data reveal that the Frame Semantics Training Group tended to use spatial concept to describe an entity moving into an enclosed area, such as a building, a restaurant, a conference room or a house. A small number of respondents used the phrase 'the sun(shine) went in' to describe an atmospheric scenario; that is, the sun moving into the clouds. However, errors when using this phrase were identified in the sentence: 'The sun ?got in from the window.' (Participants FS-14, FS-15 and FS-18). It may be that the participants overgeneralised language transfer and misapplied their L1 mental lexicon to L2 lexical choices, as discussed above.

Concerning the application of temporal meanings, the linguistic data revealed that only two sub-groups from the Frame Semantics Training Group put the temporal meanings of 'in' in phrasal verbs into use. Their data extracts are shown below:

- Participant FS-10/ FS-11: 'I put in two weeks to join the summer camp.'
- Participant FS-16/ FS-17: 'The Government put in 2 weeks to build a shelter...'

These unsatisfactory results may be due to the limited number of examples offered in Worksheet 3 (Appendix G) to evoke more responses from these L2 learners. However, the results were still encouraging in that the participants made an effort to apply the meanings of 'in' in phrasal verbs to various contexts, to demonstrate their creativity.

With respect to the application of metaphorical meanings, the results may be classified on the basis of Rudzka-Ostyn's (2003: 48-60) textbook into three themes. These themes, along with their data extracts are shown below:

- IN: psychological, physical states viewed as containers
Participant FS-01/ FS-02/ FS-03: 'We put in our effort to encourage him and bring his confidence for the next challenge.'
Participant FS-04/ FS-05/ FS-06/ FS-07: 'She put in lot of efforts to make us understand. There were some new ideas coming in what we should learn.'
Participant FS-14/ FS-15/ FS-18: 'We took in some drinks...'
- IN: sets or groups viewed as containers
Participant FS-01/ FS-02/ FS-03: '...but unfortunately, the company didn't take him in.'
Participant FS-10/ FS-11: 'The conference almost took in 200 people. I was nervous to talk to people, but the mentor let me go in with the first team and we started to introduce ourselves.'
Participant FS-12: '...the classroom, where could took in a lot of students.'

Participant FS-14/ FS-15/ FS-18: 'I came in with some co-workers to join a party.'

Participant FS-16/ FS-17: '...a shelter where could take in at least 20,000 people.'

- IN: situation, circumstances as containers

Participant FS-01/ FS-02/ FS-03: '...he got himself in the first job interview...'

Participant FS-10/ FS-11: 'We will get in trouble soon.'

Participant FS-14/ FS-15/ FS-18: 'The company got me in joining an event.'

It seems positive that the participants benefitted from the cognitive-linguistic-based training session. However, with a small sample size caution must be applied, as the findings might not be transferable to all L2 learners.

Turning now to the errors identified in the dataset. There are two main types of error: misuse of particles, and the direction of main verbs within the phrasal verbs (see Table 7.2). The correct usage of the phrasal verbs suggested below was according to information provided by a native English speaker with 20-year experience of English teaching, Rudzka-Ostyn's (2003) textbook, *Word Power: Phrasal Verbs and Compounds—A Cognitive Approach*, and two online dictionaries: *The Free Dictionary* (<https://www.thefreedictionary.com>) and *Collins Free Online Dictionary* (<https://www.collinsdictionary.com>). The first type of error in relation to the misuse of particles in the sample sentences emerging from the analysis is described below:

- Participant FS-12: 'The rain came ?in.' (suggested correct particle: 'down')
- Participant FS-12: 'Then the teacher put ?in the light.' (suggested correct particle: 'on')
- Participant FS-16/ FS-17: 'The typhoon is ?coming in Taiwan.' (suggested correct particle: 'to')

The second type of error in conjunction with the misuse of the direction of main verbs:

- Participant FS-08/ FS-09/ FS-13: 'John went to school and ?came in the student restaurant.' (suggested correct verb: 'went')
- Participant FS-08/ FS-09/ FS-13: 'He went in the classroom and ?took his book in the drawer.' (suggested correct verb: 'put')

It is difficult to explain these results, but it seems that the L1 mental lexicon is so deeply entrenched that it is difficult for L2 learners to switch their perspective to L2 lexical choices in the short term.

7.1.3 Teaching and Learning 'Out' in Phrasal Verbs

Table 7.3 provides an example of a frame semantic table demonstrating the phrasal verb 'take out' used in two scenarios. This table was used to instruct participants to learn 'out' in phrasal verbs in the part two of the first training session. Thus, the purpose of this subsection is to present the findings of 'out' in phrasal verbs during the training session.

Table 7.3 A frame semantic table: take 'out'

situation	Who	take out	whom/ what	why
space	Please (you)	take out	the trash.	for cleaning the house
metaphor	Rachel	took me out	(me)	to lunch

The results showed that two prominent phrasal verbs—'put out' and 'take out' were identified in the data analysis. When the participants were asked to explain how they understood the metaphorical meaning of the sample sentence: 'He crossed to the bedside table and put out the lights.' Participant FS-03 stated that "'Put out the light" means turning off the light because someone is going to sleep in the bedroom.' Two more participants (FS-14 and FS-16) added that 'We can translate "put out the light" into Chinese as "熄燈" (meaning: *turning off the light*) meaning to stop the light functioning. "熄" has a similar meaning to "off", so we can know "out" is equivalent to "off" here.' Interestingly, these results suggested that L2 learners were attempting to apply their L1 encyclopaedic knowledge and language transfer to understanding the abstract concept of 'put out' by inferring the relationship between 'out' and 'off'.

In the case of the metaphorical extension of the phrasal verb 'take out' in the example: 'Rachel took me out to lunch.', Participant FS-01 stated that 'It means going "out" with someone as a date.' This respondent was asked to suggest the reasons for this; she replied that 'out' is a key element that can be used to process the sentence into a deeper meaning.

7.1.4 Linguistic Output of 'Out' in Phrasal Verbs

Table 7.4 below presents the results obtained from the analysis of the linguistic output of 'out' in phrasal verbs. In analysing the dataset, three themes emerged which will be discussed in this section. They were: the application of spatial meanings, the application of metaphorical concepts and some identified errors.

Table 7.4 In-class task of using phrasal verbs with 'out' to write a story

Participant's Reference	Story
FS-01/FS-02/FS-03	I said to my brother, ' <u>Get out</u> of your room and look for something new! Stop being a couch potato!' As a result, he <u>went out</u> to watch the new film <i>La La Land</i> and then he <u>came out</u> with an idea which is [?] <u>putting out</u> by the actor in the film in order to <u>take</u> his girlfriend <u>out</u> for the upcoming Valentine's Day.
FS-04/FS-05/FS-06/FS-07	Last Friday, Jack planned to <u>go out</u> for a date. He asked Kevin if he wanted to <u>come out</u> and go to the cinema, because the cinema just <u>put out</u> a new movie. They watched 'Split'. The movie was so scary that they were scared as all <u>get-out</u> . As a compensation, Jack <u>took out</u> the money to pay for the tickets.
FS-08/FS-09/FS-13	Mary just <u>came out</u> from her bad relationship with her ex-boyfriend. She <u>put</u> all the gifts from her ex-boyfriend <u>out</u> of her room. She <u>got</u> all her photos with her ex-boyfriend <u>out</u> in order to <u>take</u> the memories <u>out</u> . Then Mary <u>went out</u> with her new boyfriend.
FS-10/FS-11	One morning, when I <u>got out</u> of my bed, my cell phone rang and received a message. Some bad feelings <u>came out</u> . The message was that my girlfriend wanted to break up with me. I <u>put out</u> all the trash about her. I am alone again. I <u>went out</u> for a walk and <u>took out</u> a cup of coffee, which she always bought for me. Oh! So sad.
FS-12	When the rain [?] <u>went out</u> , I <u>got out</u> of bed and <u>put out</u> the light. My parents wanted to <u>take</u> me <u>out</u> to lunch and the name of the restaurant just <u>came out</u> of our discussions.
FS14/FS-15/FS-18	Before we <u>got out</u> of the party, John asked me to <u>go out</u> with him. We <u>took out</u> the garbage along with us when we <u>came out</u> and <u>put</u> it <u>out</u> somewhere.
FS-16/FS-17	The building was on fire and the people <u>got out</u> of the house immediately. People seemed to <u>take out</u> all their belongings in a rush. People were warned to <u>come out</u> so that the firefighters could <u>put out</u> the fire as soon as possible.

Note. [?] Incorrect usage

When it comes to using the spatial senses of 'out' in phrasal verbs, three types of scenarios were identified in the dataset (see Table 7.4), that is, moving out of enclosed areas (e.g. a room, a house, or a building), moving personal items (e.g. money, gifts or garbage), and taking food away from a shop (e.g. a cup of coffee).

Concerning the metaphorical uses, the findings observed in this study mirror those of previous studies that have examined the effect of the theory of frame semantics (Fillmore, 1975; 1977; 1982; 1985a). Interestingly, 6 out of 7 stories created by the Frame Semantics Training Group described a frame of SOCIAL LIFE EVENT. This semantic frame may be divided into two main categories: emotions and ideas.

- Emotions:

Participant FS-04/ FS-05/ FS-06/ FS-07: 'The movie was so scary that they were scared as all get-out.'

Participant FS-08/ FS-09/ FS-13: 'Mary just came out from her bad relationship with her ex-boyfriend.'

Participant FS-10/ FS-11: 'Some bad feelings came out. The message was that my girlfriend wanted to break up with me.'

- Ideas:

Participant FS-01/ FS-02/ FS-03: '...he came out an idea which is ?putting out by the actor in the film...'

Participant FS-12: '...the name of the restaurant just came out of our discussion.'

These findings further support the idea of Fillmore's 'envisionment of the world' regarded as one of the consequences of employing a frame-based model where L2 learners provide a particular perspective to reflect their encyclopaedic knowledge of expressing *emotions* or *ideas*.

However, a semantic and syntactic error was found above: '...an idea which is putting out by the actor'. I will only discuss the semantic error here, because this current study focuses only on examining semantic value. One participant explained the reason for using this phrase: that it expresses the idea of being like a product manufactured by a human mind. However, there is an English idiom: 'put that idea out of your head' meaning 'to stop thinking about something.' This fixed expression is opposite from the meaning which the participants sought to employ in their linguistic output. It gives rise to a linguistic phenomenon known as *false friends* (*faux amis*) in the way that two languages share an apparently similar word or phrase, but they have different meanings.

Another error was identified in relation to the misuse of a phrasal verb, and can be seen in the sentence: ‘When the rain ?went out...’ (Participant FS-12). The phrasal verb ‘come down’ might be suggested as the correct usage because it means a downward movement from higher to lower position.

7.2 Training Session Two: On-Off in Phrasal Verbs

This Section reports the findings of how Mandarin-speaking English learners understand ‘on’ and ‘off’ in phrasal verbs via the cognitive linguistic approach of frame semantics. The two target particles within phrasal verbs will be discussed respectively. Two major aspects of the data encompassing: (1) teaching and learning phrasal verbs and (2) the online linguistic output produced by participants are presented in this section.

7.2.1 Teaching and Learning ‘On’ in Phrasal Verbs

Table 7.5 shows the phrasal verb ‘go on’ as a teaching and learning example (see Appendix J) given to participants in the Frame Semantics Training Group. Three types of situational context with respect to space, time and metaphor were offered in order for L2 learners to understand the multiple meanings surrounding one phrasal verb.

Table 7.5 A frame semantic table: go ‘on’

situation	Who/ what	go on	whom/ what	why
space	This road	goes on	from here through many more towns before reaching the ocean	for travellers to see a rural landscape
time	As time	goes on	renewable energy will become progressively more important	for people to think how important to save energy in a limited period of time
metaphor	Because the few symptoms	went on that we could observe,	we are able to diagnose the patient	for the appropriate medical treatment

Two themes: the confusion between ‘on’ and ‘over’ and the meaning construction on phrasal verbs with ‘on’ emerged from the data analysis. When it comes to the first theme,

Participants FS-01 and FS-04 both raised the question of how best to distinguish the meanings between ‘come on’ and ‘come over’, as well as ‘take on the responsibilities’ and ‘take over the responsibilities’. The difficulty in distinguishing these two similar particles within phrasal verbs would seem to stem from the limited instruction provided in the EFL context. According to Rudzka-Ostyn’s (2003) meaning categories of ‘on’ and ‘over’, both particles share the overlapped meaning of ‘getting close to’. This correlation between ‘on’ and ‘over’ may be a likely cause for the confusion about the two particles.

Despite some difficulty in distinguishing the uses between ‘on’ and ‘over’, a small number of those who participated in the Frame Semantic Training Group reported that they had come up with some useful methods for constructing meanings on the phrasal verbs with ‘on’. The first method was to do with first language transfer. 6 out of 18 Participants (FS-08, FS-09, FS-10, FS-11, FS-12 and FS-13) provided an equivalent Chinese character ‘續’ meaning ‘continuation’ for constructing meanings on the phrasal verb ‘go on’. The translations of the phrasal verb ‘go on’ in the given sample sentences are shown below:

- ‘Renewable energy will become progressively more important as time goes on.’: 持續
- ‘Going on the few symptoms that we could observe, we were able to diagnose the patient.’: 陸續出現

The second method was using the contextual clue to understand ‘get on’ in the sample sentence: ‘I’m nearly 31 and that’s getting on a bit for a footballer.’ Since the majority of participants indicated that they could not use language transfer to make sense of the above sentence, they were asked to use their L1 encyclopaedic knowledge of a sporting career to process the temporal meaning of ‘get on’. Two participants (FS-14 and FS-16) replied that the age of 31 is too late to become a professional footballer. These results were encouraging in that L2 learners were able to combine the contextual clues surrounding the target items with their background knowledge of the frames in order to make sense of the abstract concept.

7.2.2 Linguistic output of ‘On’ in phrasal verbs

Table 7.6 presents the compiled results emerging from analysis of the linguistic output of ‘on’ in phrasal verbs produced by the Frame Semantics Training Group. The key aspects of the findings can be listed as follows: the use of spatial concepts, the use of temporal concepts, the use of metaphorical concepts, and some errors.

Table 7.6 In-class task of using phrasal verbs with 'on' to write a story

Participant's Reference	Story
FS-01/FS-02/FS-03	I went in the living room and shouted, ' <u>Come on!</u> Hurry up! The news is on!' My friend and I sat down on the sofa watching the news <u>going on</u> TV, showing Trump <u>taking on</u> the job of being the President of USA. As a result, each department of the new Government needs to <u>get on</u> with each other and to <u>put on</u> the new policy to make the USA better.
FS-04/FS-05/FS-06/FS-07	' <u>Come on!</u> <u>Put on</u> your jacket and <u>get on</u> the train.' Kevin shouted. Because Ken and Jack <u>take on</u> the responsibilities to host a party, but as time <u>goes on</u> , they are still making no progress.
FS-08/FS-09/FS-13	John <u>took on</u> the different projects from his company. He had been working so hard for all those years, because he wanted to <u>get on</u> the top of his career. He <u>put on</u> all the duties, so he had to <u>come</u> all his energy <u>on</u> to ensure <u>going on</u> the success journey in the future.
FS-10/FS-11	'Hey! <u>Come on!</u> Let's go to the party!', and then I <u>put on</u> the most sexy dress and <u>got on</u> my friend's car. After we arrived the club, the crowds of people were <u>taking on</u> the stage, and the music was <u>going on</u> all night. What a crazy night!
FS-12	In the morning, my mom said, ' <u>Come on!</u> You should get up and see a doctor.' I <u>got on</u> my shoes and drove my car to see a doctor, but I had to go to the gas station to <u>take on</u> the oil. The route <u>went on</u> through many towns to reach the clinic. Finally, the doctor <u>put me on</u> some medicine.
FS14/FS-15/FS-18	One day, I came across my sister on the street and saw she had <u>put on</u> a beautiful suit. I asked her where she bought it. The road <u>went on</u> from here through many blocks to reach the shop she mentioned. We needed to <u>take on</u> a bus or MRT to get there. However, it was <u>getting on</u> a bit for shopping. I felt upset and my sister just said, ' <u>Come on!</u> '
FS-16/FS-17	Jessica is under stress and not willing to <u>take on</u> the job. ' <u>Come on</u> Jessica. Let's go for a walk.' said a co-worker. 'The weather is beautiful. The road <u>goes on</u> from here to

reach the Yang Ming Mountains. Put on your coat and get on the MRT. Get out of the tough situation for a while.'

Note. ? Incorrect usage

In the participants' accounts of the events surrounding the spatial usage of 'on' in phrasal verbs, three types of situational context comprising wearing clothing (e.g. shoes, suits or coats), boarding public transport (e.g. the train or bus), and describing paths of motion (e.g. 'The route went on...') were detected in the dataset (see Table 7.6). These results suggested that the participants were so familiar with the situational frames that they could immediately put these into practice.

Regarding the second theme, two types of temporal usage were identified. First, the concept of 'continuation' was used. For example, Participants FS-04, FS-05, FS-06, and FS-07 provided a phrase: '...as time goes on, they are still making no progress.' Second, an idiomatic expression: 'get on a bit' was employed to describe a scenario of being late for doing something. For instance, Participants FS-14, FS-15, and FS-16 provided an example: 'It was getting on a bit for shopping.' An implication of this is the possibility that the cognitive linguistic approach of frame semantics has a beneficial effect on encouraging L2 learners to use the foreign language with some degree of flexibility and creativity.

When it comes to the application of the metaphorical concepts of 'on' in phrasal verbs, the scenarios of describing emotions, appearing before an audience, and undertaking a job or responsibility recurred throughout the dataset. Interestingly, 17 out of 18 participants provided an example: 'Come on!' to express two situations. One was to encourage someone to do something; the other was to express that something unreasonable is being said. The rest of the linguistic data revealed that the participants were seeking other ways to apply the abstract concepts of phrasal verbs to other scenarios, such as building up a friendly relationship with others (e.g. Participants FS-01/ FS-02/ FS-03: '...each department of the new Government needs to get on with each other...'), continuation (e.g. Participants FS-10/ FS-11: '...the music was going on...'), and prescribing a medicine (Participant FS-12: 'Finally, the doctor put me on some medicine.'). Taken together, the above results suggested that the participants were able to apply the given phrasal verbs with 'on' to a range of contexts in use.

The final aspect of the results revealed some errors made by the participants. Table 7.7 is a compilation of the inappropriate uses of phrasal verbs identified in the dataset. Additionally, the researcher provided the suggested usage for reference. The details of how she analysed the linguistic errors can be referred to in Section 7.1.2.

Table 7.7 Incorrect and correct uses of 'on' in phrasal verbs

Participant's Reference	Incorrect Usage	Suggested Correct Usage
FS-01/FS-02/FS-03	... [?] <u>put on</u> the new policy to make the USA better	<u>put</u> the new policy <u>into</u> <u>practice</u>
FS-08/FS-09/FS-13	He wanted to [?] <u>get on</u> the top of his career. He [?] <u>put on</u> all the duties.	He wanted to <u>get to</u> the top in his career. He <u>took on</u> all the duties.
FS-10/FS-11	... [?] <u>come</u> all his energy <u>on</u> ...the crowds of people were [?] <u>taking on</u> the stage	<u>put</u> his energy <u>in</u> the crowds of people were <u>coming on</u> stage
FS-12	... [?] <u>got on</u> my friend's car	<u>got in</u> my friend's car
FS-14/FS-15/FS-18	I had to go to the gas station to [?] <u>take on</u> the oil.	I had to go to the gas station to <u>fill up</u> .
	We needed to [?] <u>take on</u> a bus ...	We needed to <u>get on</u> a bus...

Note. [?] Incorrect use

Two types of error were found in the analysis. The first was the incorrect particle used within the phrasal verb. For example, when mentioning entering a car or a taxi, the appropriate usage of the phrasal verb would be get 'in' rather than get 'on' (see Table 7.7). The second type of error was that the phrasal verbs were not used in agreement with the context. For instance, Participants FS-01, FS-02 and FS-03 misused the phrasal verb 'put on' to describe the situation of carrying out an action. Participant FS-12 misused the phrasal verb 'take on' to express the situation of filling a gas tank. Comparing the two error types identified in the dataset, it seems that L2 learners tend to overgeneralise either the functions of the particle in the phrasal verb, or the context of the phrasal verb. These finding has an important implication for helping EFL learners to understand the vocabulary breadth and depth of phrasal verbs.

7.2.3 Teaching and Learning 'Off' in Phrasal Verbs

The Frame Semantics Training Group was provided with a frame semantic table illustrating the phrasal verb 'take off' with three contextual uses (space, time and

metaphor) in order to acquire the use of 'off' in phrasal verbs, as shown in Table 7.8 (see Appendix J).

Table 7.8 A frame semantic table: take 'off'

situation	Who/ what	take off	whom/ what	why
space	She	took (her hat) off	her hat	for entering a room
time	Mitchel's schedule had not permitted him to	take time off	(time)	for a busy schedule
metaphor	The discount dealer	took 10% off	the normal price	for a lower price

Concerning the results of teaching and learning 'off in phrasal verbs' emerging from the data, a recurrent theme in the dataset was a sense amongst participants that they tended to use the opposite particle, i.e. 'on' to construct meanings on 'off'. Three aspects of data emerged from the analysis in terms of this tendency. The first aspect was using Mandarin Chinese translation to compare the meanings of 'on' and 'off'. Participants FS-16 and FS-17 pointed out that they translated 'take on' as '承擔' in response to the phrase 'take on the job' and 'put off' as '悖離' reflecting the meaning of 'put off the voters'. They felt that the equivalent Chinese translations helped them to understand these phrasal verbs by considering '擔' as 'on' and '離' as 'off'. Because of the opposite correlation between 'on' and 'off', they could grasp the meaning of the phrasal verbs more easily and use them as mnemonic traces to enhance their memory retention.

The second aspect of the data was the meanings of 'on' could be a complement to the meanings of 'off' in various contexts. The majority of participants pointed out that the phrasal verbs 'on' and 'off' could be applied to the following scenarios. The examples below can be referred to in Worksheet 6 (see Appendix J):

- Embarking on vs. disembarking from the public transport:
'This is a brief stop to take on passengers and water.'
'Let's get off the train at the next stop.'
- Wearing vs. without wearing clothing or make-up:
'The kids got on their boots and played in the snow.'
'She took off her hat.'
- Administering a drug vs. stop using a drug:
'The doctor put the patient on antibiotics.'

‘People are trying to come off tranquilizers.’

The common view among participants was that comparing and contrasting the meanings of ‘on’ and ‘off’ used in a range of contexts provided them with a structured frame of understanding not only different information with the same item, but also the opposite meanings of phrasal verbs. These results suggested that the participants were developing their metalinguistic knowledge in a way that helped process deeper information surrounding phrasal verbs.

The third aspect of the data was concerned with a particular sample sentence: ‘Then the fire alarm went off. I just grabbed my clothes and ran out.’ The majority of participants argued that this example was difficult for them to understand since in Mandarin Chinese, ‘on’ is used to describe a sudden loud noise while a fire alarm is going off. However, when it comes to the meaning of ‘to stop an electrical device operating’, such as ‘turn off’, the concept of ‘off’ applies to both English and Mandarin Chinese (e.g. ‘關’, meaning ‘off’).

After introducing this similar concept embedded in English and Mandarin Chinese, two participants (FS-02 and FS-16) reported that they could use ‘on’ representing ‘a normal state’ and ‘off’ expressing ‘an abnormal state’ to understand the sentence mentioned above, since making a sudden loud noise can be viewed as an abnormal situation. In summary, it was encouraging that L2 learners could infer meanings by applying the similar meaning construction between two languages to ‘on’ and ‘off’ in phrasal verbs.

7.2.4 Linguistic Output of ‘Off’ in Phrasal Verbs

Table 7.9 presents the results emerging from the analysis of the linguistic output of ‘off’ in phrasal verbs. Four themes were identified, and they were: the utilisation of spatial senses, temporal senses, metaphorical senses, and some errors in relation to the uses of phrasal verbs with ‘off’.

Table 7.9 In-class task of using phrasal verbs with ‘off’ to write a story

Participant’s Reference	Story
FS-01/FS-02/FS-03	I <u>took</u> time <u>off</u> work in order to <u>get</u> the stressful surroundings <u>off</u> . It would help me <u>?come off</u> my bad habit of smoking. I <u>put off</u> everything and <u>went off</u> to travel around the world for one year.

FS-04/FS-05/FS-06/FS-07	After an earthquake, all the power <u>?went off</u> and everyone <u>?got off</u> the building. People tried to <u>come off</u> the dirt with their hands. The helicopters <u>took off</u> to search victims. The Government tried to <u>put off</u> the issues such as dealing with water shortage.
FS-08/FS-09/FS-13	When the class bell <u>went off</u> , the students <u>came off</u> their chairs. Amy <u>put off</u> her date to go out with her boyfriend, because she saw her boyfriend <u>taking off</u> his ring, which she gave him as a gift. She was upset because they had <u>got off</u> so well.
FS-10/FS-11	After working all day long, I <u>went off</u> the office and tried to get some fun. However, my wife called and yelled at me: 'It's your turn to <u>?take off</u> the trash today.' Then I <u>?came off</u> the elevator, and <u>?put off</u> my hat, feeling very upset. I really needed to go home. Even until I <u>got off</u> the bus, I still felt disappointed. Oh, today was not my day.
FS-12	He wanted to <u>get off</u> drugs. The addiction made him <u>put off</u> the meetings and <u>take time off</u> his work. He should <u>go off</u> his bad friends. The doctor told him how to <u>come off</u> drugs.
FS14/FS-15/FS-18	The hotel was on fire. The fire alarm <u>went off</u> . I just grabbed my clothes and <u>got off</u> the building. My meeting should be <u>put off</u> .The hotel manager tried to <u>?come off</u> upset and <u>?take off</u> the responsibility.
FS-16/FS-17	The customer asked to <u>take</u> more percentage <u>off</u> the original price. Therefore, the new model release would be <u>put off</u> . Mary got the notice so she <u>got off</u> the train in a rush. She was disappointed and angry. She'd like to <u>go off</u> by herself for a while to calm down; however, she couldn't. The sense of responsibility forced her to work hard because she hoped that the project would <u>come off</u> well.

Note. ? Incorrect usage

In terms of participants' linguistic output of 'off' in phrasal verbs, three types of context involving spatial senses recurred throughout the dataset. The first context was to describe leaving a place such as a building or an office. The second type was to do with the setting of alighting from a vehicle, particularly public transport (e.g. a train or a bus.) The third

type was the situation of removing an entity from the surface of another entity. For example, ‘...come off the dirt with their hand...’, or ‘...taking off his ring...’ (see Table 7.9).

With respect to the employment of the temporal sense of ‘off’ in phrasal verbs, the most common example produced by the participants was the phrase: ‘took time off’ reflecting a concept of ‘to stop working temporarily’. It seems possible that these results were due to the limited number of contextual clues provided in the worksheet that were intended to marshal more of the participants’ ideas.

As far as the application of metaphorical concepts is concerned, four themes were identified. First, the results revealed that an example of ‘putting off the meeting or an issue’ was commonly produced amongst participants. Second, ‘go off’ was adopted to describe a sudden loud noise made by a bell or fire alarm. Third, ‘come off’ and ‘get off’ were detected to express the meaning of ‘to stop taking a drug’ in the dataset. Fourth, ‘come off’ was observed to convey a sense that an event ended with either a successful or a failed result. For example, Participants FS-16 and FS-17 proposed this sentence: ‘The sense of responsibility forced her to work hard because she hoped that the project would come off well.’ A comparison of the results between the use of spatial and metaphorical sense suggested that L2 learners had more language creativity and flexibility in terms of metaphorical applications.

However, some errors were found in the data analysis. The results were compiled and accompanied by the suggested appropriate usage, as shown in Table 7.10.

Table 7.10 Incorrect and correct uses of ‘off’ in phrasal verbs

Participant’s Reference	Incorrect Usage	Suggested Correct Usage
FS-01/FS-02/FS-03	It would help me <u>?come off</u> my bad habit of smoking.	It would help me <u>give up</u> my bad habit of smoking.
FS-04/FS-05/ FS-06/FS-07	...all the power <u>?went off</u> and everyone <u>?got off</u> the building...	...all the power was <u>blacked out</u> and everyone <u>got out</u> of the building...
FS-10/FS-11	...‘It’s your turn to <u>?take off</u> the trash today.’ Then I <u>?came off</u> the elevator, and <u>?put off</u> my hat, feeling very upset.	... ‘It’s your turn to <u>take out</u> the trash today.’ Then I <u>came off/ got off</u> the elevator, and <u>took off</u> my hat, feeling very upset.

FS-14/FS-15/FS-18	The hotel manager tried to <u>?come off</u> upset and <u>?take off</u> the responsibility.	The hotel manager tried to make the upset feelings <u>wear off</u> and <u>shuffle off</u> the responsibility.
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Note. ? Incorrect usage

Misuse of the phrasal verbs appeared mainly in the sense that there was misuse of collocations of the phrasal verbs. The most striking observation to emerge from the data was the sentence: 'I ?came off the elevator' (Participants FS-10 and FS-11). According to the dictionary resources mentioned in Section 7.1.1, 'elevator' is American usage, and it can collocate with the phrasal verbs 'get in', 'get out', 'come on' and 'come off', depending on the context in use. However, when consulting a British English speaker she commented that 'this sentence does not sound natural but is acceptable'. She suggested that the phrasal verbs 'get on' and 'get off' usually collocate with a ski lift; consequently, 'get off' and 'come off' were both considered as appropriate uses. It is difficult to explain the errors made by the participants, but it might be related to their lacking in awareness of collocational and contextual knowledge of phrasal verbs in use.

7.3 Training Session Three: Up-Down in Phrasal Verbs

This section gives a detailed account of how the Frame Semantics Training Group constructed meanings on 'up' and 'down' in phrasal verbs. This sub-section reports the results of two main themes: teaching and learning the phrasal verbs, and the linguistic output of the phrasal verbs.

7.3.1 Teaching and Learning 'Up' in Phrasal Verbs

Table 7.11 below (see Appendix M) presents a frame semantic table using 'take up' as an example to help participants in the Frame Semantics Training Group to understand 'up' in phrasal verbs. Three types of situational context, consisting of space, time and metaphor were demonstrated.

Table 7.11 A frame semantic table: take ‘up’

situation	Who/ what	take up	whom/ what	why
space	I have to	take (the skirt) up	the skirt	for making it shorter
time	I wouldn’t want to	take up	too much of your time	for leaving more time for yourself
metaphor	We’ll	take (each issue) up	each issue separately	for solving the problems

In analysing the data of teaching and learning ‘up’ in phrasal verbs, some issues relating to understanding the multiplicity of meanings were prominent. The first issue linked to the spatial concept was how participants constructed meanings, particularly on two phrasal verbs: ‘put up’ and ‘take up’. The sample sentences (see Appendix M) in conjunction with these two phrasal verbs are provided below:

- ‘He was putting up a new fence at his home.’
- ‘The skirt is too long. I’ll have to take it up.’

When it comes to meaning construction on the first example above, Participant FS-16 explained that she used an equivalent Chinese translation, ‘豎立圍牆’ (meaning: *setting up a fence*), to understand the meaning of ‘putting up the fence’. She added that ‘Chinese character “立” has the same meaning as “up”. Both mean that an object is in an upright position.’ It may be that L2 learners benefitted from language transfer that helped them to understand certain phrasal verbs by adopting encyclopaedic knowledge shared between their L1 and L2.

Regarding the second example mentioned above, some participants suggested that it was easy for them to grasp the meaning of ‘take up’ by understanding that the relationship might represent a conversation between a customer and a tailor. Others commented that it was difficult for them to make sense of this phrasal verb, because they tended to conceptualise it as *making the skirt shorter* in Mandarin Chinese. This discrepancy can be attributed to lack of awareness of the discourse between interlocutors and culturally embedded information.

The second theme was the views expressed mainly in respect of the temporal concept of ‘take up’ in the same sentence: ‘I wouldn’t want to take up too much of your time.’ Some participants indicated that they had used the familiar concept of ‘time’s up’ to understand

the above sentence. Others said that they had a mental image of an hourglass, viewing sand flowing from the top to the lower section to understand the concept of using up time. These findings support the idea that frequent exposure to the L2 context in use has a beneficial effect on L2 learners' language acquisition. The results are also consistent with Lakoff and Johnson's Conceptual Metaphor Theory (1980, 2003) and suggest that the meaning of abstract concept is understood by the meaning of concrete concept.

The final issue was to do with how participants constructed meanings on 'get up' and 'put up'. Participants were required to give information on how they understood the sample sentence: 'Let's get a team up and enter the tournament.' The majority of participants felt that it was difficult for them to understand 'get up' as used in this sentence. In order to trigger their metaphorical thinking, participants were asked to discuss the purpose of 'getting a team up'. Subsequently, Participant FS-03 stated 'To get a team up is to win the game, so a team needs to be recruited first. Then the coach of the team needs to cheer the team members up before they enter a game and win the game.' Another (Participant FS-12) commented 'I will translate "get a team up" into Chinese as "提升士氣" to help me understand because "提升" means getting something up and "士氣" means team spirit.' Based on what had been suggested by Participant FS-12, a small number of participants were inspired and indicated that 'up' could be used to express feelings or emotions, such as HAPPY IS UP.

Concerning the second problematic phrasal verb 'put up' in the example: 'I can't put up with that awful noise from next door.' Participant FS-16 pointed out that she was able to understand this sentence by inferring from the temporal meaning of 'up' representing the meaning of completeness or using up something. She also provided an equivalent Chinese translation '受夠了' (meaning: *had enough*) and a synonym 'fed up with' to explain how she conceptualises 'put up with' in the sentence context.

Taken together, the results of understanding 'get up' and 'put up' were encouraging. It seems that to some extent, L2 learners are able to infer from the connotations of phrasal verbs as well as to apply accurate language transfer to understanding the deeper meaning of metaphors.

7.3.2 Linguistic Output of 'Up' in Phrasal Verbs

The results obtained from the analysis of the linguistic data of 'up' in phrasal verbs are shown in Table 7.12. There were four themes identified in the dataset: the application of

spatial senses, the application of temporal senses, the application of metaphorical senses, and some errors.

Table 7.12 In-class task of using phrasal verbs with 'up' to write a story

Participant's Reference	Story
FS-01/FS-02/FS-03	We saw the news <u>?putting up</u> on TV saying the petrol price is <u>going up</u> tomorrow so we <u>came up</u> with an idea to <u>get up</u> early tomorrow to get to the petrol station and fill up our car. Then we can <u>take</u> our picnic plan <u>up</u> with each other.
FS-04/FS-05/FS-06/FS-07	Because the living expenses are <u>going up</u> , Mary can't <u>put up</u> with the price anymore. She decides to <u>come up</u> to Newcastle. Moving around by herself <u>takes up</u> too much time so she hopes to <u>get</u> a team of her friends <u>up</u> to help her move.
FS-08/FS-09/FS-13	You need to <u>get</u> the courage <u>up</u> to face the pain and awful things because they will pass. The sun still <u>comes up</u> every morning. We can <u>go up</u> and visit Canada next week if you can't <u>put up</u> with these troubles anymore. We can <u>take</u> your big problem <u>up</u> and deal with it.
FS-10/FS-11	Yesterday was a terrible night. The wind roared outside my window and I <u>got up</u> early before the sun <u>came up</u> . Then, I <u>?took up</u> my glasses to see what's going on outside. It was too loud to <u>put up</u> with the noise, so I turned on TV and watched news. It said that this typhoon was <u>going up</u> to Taipei and we needed to be more careful when we went outside.
FS-12	I <u>got up</u> before the sun <u>came up</u> and I <u>went up</u> the third floor to see the movie. I <u>took up</u> all the morning to enjoy, but I couldn't <u>put up</u> with the awful noise made by my sister next door.
FS14/FS-15/FS-18	We <u>came up</u> to Taipei to visit our friends. After arriving, we <u>went up</u> the second floor where their apartment is. We found out that they hadn't <u>got up</u> yet. They <u>?put up</u> a sleepy face when we opened the door. They didn't <u>take up</u> too much of our time to wait before getting in.
FS-16/FS-17	Our training schedule <u>goes up</u> to the end of this month. We have to <u>come up</u> to Keelung to continue the training courses. I can't <u>put up</u> with you guys. I don't want to <u>take</u>

up your time to blame a mistake on you. The most important thing is to get our team up and win the competition.

Note. ? Incorrect usage

Regarding the application of spatial meanings, two themes: describing the movement of the sun (e.g. 'The sun still comes up every morning.') and expressing an entity moving to a higher position (e.g. '...I went up the third floor...') recurred throughout the dataset. One possible factor could be that what these participants produced was influenced by the sample sentences provided in Worksheet 9 (see Appendix M).

In the case of the application of temporal senses, the majority of participants used 'take up' to describe 'using up a particular amount of time'. Participant FS-12 provided an example: 'I took up all the morning to enjoy it (the movie).' However, only two participants (FS-16 and FS-17) used 'go up' to express the temporal context, as can be seen in the data extract: 'Our training schedule goes up to the end of this month.' Compared with the linguistic production of spatial and metaphorical usage, the results of temporal uses in relation to 'up' in phrasal verbs were encouraging. It seems that the participants had benefitted from the effect of the training sessions.

Concerning the application of metaphorical contexts, three themes were identified from the data analysis. First, the conceptual metaphor, i.e. NORTH IS UP, such as 'We can go up and visit Canada next week...' (Participants FS-08, FS-09 and FS-13) was frequently used in the examples provided by the majority of participants. Second, 5 out of 7 sub-groups in the Frame Semantics Training Group employed 'put up with' to convey the meaning of 'tolerating or enduring someone or something', as shown in one of the data extracts: 'It was too loud to put up with the noise...' (Participants FS-10 and FS-11). Lastly, 'get up' was identified as being frequently used in the linguistic dataset (see Table 7.12). Taken together, these results suggest that there was an association between the input given in the training session and L2 learners' real-time linguistic output.

The errors found in the analysis were mainly linked to lack of collocational awareness of the phrasal verbs in use. Three examples found in the dataset are presented below:

- Participant FS-01/ FS-02/ FS-03: 'We saw the news ?putting up on TV...'
- Participant FS-10/ FS-11: 'I ?took up my glasses to see what's going on outside.'
- Participant FS-14/ FS-15/ FS-18: 'They ?put up a sleepy face when we opened the door.'

After consulting a native English speaker and dictionary resources mentioned in Section 7.1.1, the phrasal verb ‘put on’ was suggested as an appropriate choice. The possible explanation for these results might be that the participants overgeneralised the usage between ‘up’ and ‘on’ by incorrectly projecting the meanings of ‘上’ onto L2 output with insufficient collocational awareness. An implication for this is the possibility that the first language transfer may exert a positive effect on helping L2 learners to use phrasal verbs accurately. For instance, the Chinese character ‘上’ can be used to translate the above phrasal verbs. The suggested Chinese equivalencies of the above phrasal verbs could be ‘出現在電視上’ for ‘...the news putting on TV...’, ‘戴上眼鏡’ for ‘...put on my glasses...’, and ‘睡意在臉上’ for ‘...putting on a sleepy face...’ Despite the beneficial effect of adopting language transfer, it is important to raise L2 learners’ awareness of the multiple meanings of ‘上’ used in Mandarin Chinese, as ‘上’ embraces the meanings of ‘up’ and ‘on’ depending on the context in use.

7.3.3 Teaching and Learning ‘Down’ in Phrasal Verbs

A frame semantic table (see Appendix M) encompassing three situational contexts surrounding the phrasal verb ‘go down’ are set out in Table 7.13. This table was used to teach the Frame Semantics Training Group the meanings of ‘down’ in phrasal verbs.

Table 7.13 A frame semantic table: go ‘down’

situation	Who/ what	go down	whom/what	why
space	When the sun	goes down	it goes below horizon	for moving its position in the sky
time	She will	go down	in history as the greatest opera singer	for people to remember her
metaphor	I	went down	and visited my family in Mexico	for enjoying the tropical weather

There were two themes: the aspects of temporal and metaphorical senses found in the analysis of the linguistic output concerning ‘down’ in phrasal verbs. The sample sentence: ‘She will go down in history as the greatest opera singer.’ was observed to be a difficult item to understand in respect of the temporal context. Only a small number of participants understood the temporal uses of ‘go down in history’ and they explained that they had

inferred the meaning from a fixed expression in Chinese ‘留下歷史’ (literal meaning: *leave down history*) to reflect the same concept onto ‘go down in history’. Another participant (FS-02) added that ‘I used an image of “family tree” to figure out the meaning, because the ancestor is located on the top of the tree and their next generation is placed below their upper generation. It is like a downward movement.’ Taken together, these results may be explained by the fact that L2 learners benefit from having encyclopaedic knowledge and from first language transfer, i.e. the equivalent Chinese translation. These findings may help us to explore how to assist L2 learners to employ language transfer combining L1 and L2 encyclopaedic knowledge to enhance learning retention.

In terms of the second theme, issues related to ‘put down’ and ‘get down’ were particularly prominent in the data. The provided sample sentences (see Appendix M) associated with these phrasal verbs are as follows:

- ‘He bought an investment property for \$100,000 and put down \$20,000.’
- ‘Get your head down, you stayed up so late last night.’

In response to the question: ‘How do you understand “...put down \$20,000”?’ a range of responses was elicited. For example, Participants FS-01, FS-02, and FS-03 commented that ‘We discussed the meaning and we have three thoughts about the meaning of “put down”. First, \$20,000 is a deposit to be put down. Second, \$20,000 is the amount that has been deducted from the total. Third, \$20,000 is the amount adding to the total.’ Another response to this question was ‘down payment’ (Participants FS-10 and FS-15). These findings have an important implication for EFL teachers looking to encourage L2 learners to develop an in-depth understanding of phrasal verbs by exploring their knowledge representation, regardless of whether the meaning is accurate.

When it comes to how to construct meanings on the second sample sentence provided above, Participants FS-02, FS-07, FS-11 and FS-12 commented that they used the contextual clue ‘stayed up’ in the sentence to assess the semantic value of ‘get down’. The most surprising aspect of the data came in the response provided by Participant FS-16. She adopted a semantic frame to understand various information with the same phrasal verb by comparing the phrasal verb ‘get down’ between a spatial context (e.g. ‘Get your head down’) and a metaphorical context (e.g. ‘Get your head down, you stayed up so late last night.’). She further indicated that in the spatial context, ‘get down’ simply means lowering the position; whereas in the metaphorical context, ‘get down’ has an abstract meaning of relaxation. These results are in agreement with Littlemore’s (2009) suggestions for applying the theory of frame semantics to EFL, which argue that there is a

beneficial effect from using semantic frames and contextual information on constructing word meanings.

7.3.4 Linguistic Output of 'Down' in Phrasal Verbs

Table 7.14 shows an overview of the linguistic data produced by the Frame Semantics Training Group, while they were asked to use 'down' in phrasal verbs to write a story. I have adopted the contexts in use as the organising principle for presenting extracts from space to time and metaphor in the following.

Table 7.14 In-class task of using phrasal verbs with 'down' to write a story

Participant's Reference	Story
FS-01/FS-02/FS-03	' <u>Get down!</u> ' a screaming shout on the street frightened me. I turned around seeing a police officer <u>putting down</u> a drug dealer suspect who <u>came down</u> to Newcastle to do business. They <u>went down</u> to the police station. The officer <u>took down</u> the notes of the case and then put him in jail.
FS-04/FS-05/FS-06/FS-07	When the temperature <u>goes down</u> , the snow <u>comes down</u> . People <u>put down</u> more food than usual and want to <u>take down</u> the curtains to <u>get down</u> for some rest earlier.
FS-08/FS-09/FS-13	A: Don't <u>get</u> your head <u>down</u> . Don't let the smart phone control your life. <u>Put down</u> your to-do-list and make your dreams come true. Life experience has <u>come down</u> to us through generations. You don't need to <u>go down</u> in history. You just need to live happily. B: Thank you, Dad. I will pick myself up. I have <u>taken down</u> your advice in my notebook.
FS-10/FS-11	Today was so cold and the rain was <u>coming down</u> all day. We decided to <u>go down</u> to Tainan and have a vacation. We searched the popular locations and foods on the website and <u>took down</u> some notes. On our way to Tainan, we tried to <u>get</u> our head <u>down</u> a while to restore some energy. Let's <u>put</u> another person <u>down</u> to deal with the trouble and we can have a crazy weekend.
FS-12	I <u>went down</u> to Mexico to visit my parents. When I arrived at the station, the rain was <u>coming down</u> . After getting on the train, I <u>put</u> my raincoat <u>down</u> on the floor. Finally, I

	arrived at my parents' place. I got in the house and [?] <u>took down</u> my shoes. I needed to <u>get</u> my head <u>down</u> because it was such a long way to get there.
FS14/FS-15/FS-18	When the sun <u>went down</u> , the cold rain was <u>coming down</u> . We got to the town and <u>put down</u> some food. We <u>took down</u> some chocolate before leaving this town.
FS-16/FS-17	Her husband asked her to <u>go down</u> to the basement to <u>take down</u> a vase from a shelf. That was an antique <u>came down</u> from his grandmother. She <u>put</u> the book <u>down</u> and <u>got</u> her head <u>down</u> to pretend to sleep.

Note. [?] Incorrect usage

From the viewpoint of spatial contexts, two types of meaning were expressed. One was to do with describing a movement from a higher to a lower position. For example, Participants FS-16 and FS-17 provided a sentence: 'She put down the book and got her head down to pretend to sleep.' The other was demonstrating atmospheric conditions (e.g. Participants FS-14, FS-15, and FS-18: 'When the sun went down, the cold rain was coming down.'). Only one group of participants produced a sentence: 'They went down to the police station.' describing the action of reaching a specific location. These findings suggested that in general these participants' linguistic production was stimulated by the examples provided in the training session (see Appendix M).

Only a small number of respondents adopted 'down' in phrasal verbs to describe the temporal context. For instance, Participants FS-08, FS-09 and FS-13 provided a sentence: 'You don't need to go down in history. You just need to live happily.' This result may explain the relatively good correlation between the training session introducing 'down' in phrasal verbs and the participants' linguistic output.

Three recurrent themes in relation to the metaphorical contexts emerged from the analysis. First, the majority of participants used 'down' to express a conceptual metaphor: SOUTH IS DOWN, as can be seen in one of the sample sentences: 'I went down to Mexico to visit my parents.' (Participant FS-12). Second, using 'down' metaphorically to express 'eating' or 'writing' was identified. For 'eating', Participants FS-14, FS-15, and FS-18 offered this sentence: 'We took down some chocolate before leaving this town.' For 'writing', Participants FS-08, FS-09 and FS-13 provided their example: 'Put down your to-do-list.' Third, 'down' in phrasal verbs was used to express 'going to bed and sleeping', as can be seen in one of the examples: 'I needed to get my head down because it was such a long way to get there.' (Participant FS-12). These findings have an implication for developing L2 learners' metaphorical thinking on phrasal verbs by raising awareness of the similar

meaning construction shared between two languages, as it may help L2 learners ease the stress of accessing the abstract meanings of phrasal verbs.

It is encouraging that only one misuse of 'down' in phrasal verbs was found in the dataset: 'I got in the house and ?took down my shoes.' (Participant FS-12). The suggested appropriate phrasal verb for this sentence context is 'take off'. A possible explanation for this might be that this participant was confused over the uses between 'down' and 'off'. Because the Chinese character '下' has multiple meanings of 'down' and 'off', this may cause some L2 learners to overgeneralise the usage of 'down' without considering the word association in L2 collocational knowledge.

In summary, the results of the linguistic data showed that there is a positive association between the given training sessions and the linguistic output. Sections 7.1 to 7.3 report the findings emerged from the analysis of the training sessions designed for using frame semantics to teach and learn phrasal verbs with six target particles. The next section, therefore, moves on to initially discuss the use of Frame Semantics in terms of the acquisition of particles in phrasal verbs.

7.4 Initial Discussion of Frame Semantics Employed in Learning Particles in Phrasal Verbs

The reports and findings in this chapter are an answer to the second research question, which is how Mandarin Chinese-speaking English learners construct meanings on particles in phrasal verbs when the cognitive linguistic approach of frame semantics is employed, and to what extent this cognitive approach can facilitate L2 learners' understanding of phrasal verbs. In this chapter, I began by reporting the results of three training sessions designed to teach and learn six target particles in phrasal verbs before addressing L2 learners' linguistic output in the use of the cognitive linguistic approach of frame semantics. The final section of this chapter discusses ways in which the cognitive linguistic approach of frame semantics exerts an impact on the acquisition of particles in phrasal verbs.

The analysis of the three training sessions shed light on meaning construction and linguistic output that L2 learners had with the worksheets designed for the cognitive linguistic approach of frame semantics. When it comes to how L2 learners construct meanings on the particles in phrasal verbs two broad themes, the similar and unique meaning construction between Mandarin and English, emerged from this. The similarities between these two languages can help L2 learners to understand English particles in

phrasal verbs, while the uniqueness may cause them difficulty understanding; however some facilitating methods were identified to tackle those types of difficulty, during the training sessions.

Few studies have been found to note the importance of facilitation (Ellis, 2008; Gass & Selinker, 2008) of the similar meaning construction on particles in phrasal verbs. In this study, there were three types of facilitation by which L2 learners may benefit from similar meaning construction. They were: (1) positive language transfer, (2) using the spatial senses to understand the metaphorical senses, and (3) learning a phrasal verb as an idiomatic chunk similar to the process of the first language acquisition. Regarding the first facilitation, many examples were found in the data analysis. For instance, the phrasal verbs 'go in' in the sample sentence: 'I explained the procedure to the new mechanic many times, but it didn't *go in*' can be translated into '聽進去' (literal meaning: *listen in*) in response to the equivalency of English particle 'in'. The second facilitation can be seen in the way some participants inferred the abstract meaning of 'put out the light' from the meaning of 'put out the garbage' spatially, as there is a resemblance between two uses, namely moving out of a container. One interesting finding is that the English idiom 'go down in history' is coincidentally equal to a fixed expression in Mandarin '留下歷史' word for word. One implication of this is the possibility that EFL learners can take advantage of learning two idioms as a formula in a more efficient and effective manner.

In terms of the unique meaning construction between Mandarin and English, the participants in the Frame Semantics Training Group benefitted to some extent from the instructions given, despite some difficulty that remained after the training sessions. The universal conceptual metaphors (Lakoff & Johnson, 2003) proved helpful. For example, TIME IS MONEY was useful for understanding the temporal sense of particle, and HAPPY IS UP assisted in the understanding of positive emotions. It is argued that encyclopaedic knowledge and the mental lexicon are two sides of the same coin (Littlemore, 2009). The results of this study suggest that it is indeed useful to apply L2 encyclopaedic knowledge to facilitating EFL learners' acquisition of phrasal verbs. For example, the majority of participants agreed that the phrase 'put down \$20,000' was one of the most difficult items for them to understand. In order to improve their understanding during the training session, the researcher highlighted the importance of COMMERCIAL EVENT (e.g. the relationship between buying and selling), contextual information and collocation awareness. Subsequently, those who encountered difficulty understanding this particular phrase reported it had become easier for them to process the information. What is more, it might be helpful for improving EFL learners' understanding of phrasal verbs by noting saliency in English in contrast with Mandarin Chinese. The results suggest the beneficial

effect of introducing 'on' representing 'a normal state' and, 'off' meaning 'an abnormal state' when helping the participants to construct meaning on '...the fire alarm went off...' It seems that language transfer may also exert a positive effect on facilitating Mandarin-speaking English learners' understanding of unique meaning construction, such as an equivalent Chinese translation '受夠了' (literal meaning: *had enough*) of the phrasal verb 'put up with'. This result reflects that of Littlemore (2009) who argues that linking L1 mental lexicon and L2 encyclopaedic knowledge contributes to second language acquisition. She (2009: 73) explains the reason as follows:

'What successful L2 acquisition requires them to do is to reconfigure their mental lexicon to incorporate L2-style links, thus bringing it closer to that of an actual L2 speaker. This means that as they become more proficient in the target language, there will be changes in how their encyclopaedic knowledge is structured and variations in the types of links in the mental lexicon begin to appear.'

If we now turn to the linguistic production made by the Frame Semantic Training Group, the results were very encouraging. Participants in this training group were asked to create a story in response to a set of phrasal verbs given in each training session. This type of in-class activity offers L2 learners an opportunity to explore the complexity of phrasal verbs by developing their vocabulary creativity and flexibility. Some may argue that the recruited participants in this study were all adult L2 learners; however, an implication for this is the possibility that a bottom-up teaching mode can be employed, such as starting from primary education, since the results above suggest that some phrasal verbs can be learned as idiomatic chunks as in first language acquisition. Another implication is that the explicit teaching of phrasal verbs might be taken into account in pedagogical design. EFL teachers may require certain amount of training in ways to employ cognitive linguistic approaches in the teaching setting. Both EFL teachers and learners can benefit from explicit instruction (Ibraim & Justi, 2016; Littlemore, 2009; Nation, 2001; Rupley *et al*, 2009) because it can help teachers to identify the potential difficulty that learners may encounter in the process of learning.

Concerning errors participants made in their linguistic output, five types of error emerged from the analysis:

- Incorrect particle: '...? go on my friend's car...'
- Misuse of direction of the main verb in the phrasal verb: '...?took his book in the drawer...'
- False friends: '...an idea which is putting out by the actor'

- Lack of contextual and collocational awareness: ‘...?come off the elevator...’
- Negative language transfer: ‘...take ?up my glasses...’and ‘...took ?down my shoes.’

Detailed discussion of the errors identified above can be found in Sections 7.1 to 7.3. The issues emerging from these results relate specifically to the lack of adequate L2 encyclopaedic knowledge and mental lexicon. The factor of limited sample sentences provided in the restricted timeframe of three training sessions may have hindered the L2 learners to build their vocabulary breadth and depth. It may also have caused them to overgeneralise and have stereotyped ideas about meanings of phrasal verbs. As mentioned in the literature review (see Section 2.4), the theoretical framework adopted in this chapter is underpinned by the cognitive linguist Charles Fillmore’s (1975, 1977, 1982, 1985a; Fillmore & Atkins 1992) theory of frame semantics. Thus the various contextul clues, such as the words surrounding the target phrasal verb and the relationships between the language users, were highlighted as a way to trigger participants’ encyclopaedic knowledge. Further research on the current topic is therefore recommended.

This chapter has described the results of the cognitive linguistic approach of frame semantics used in this investigation. The data of post-test and interview gathered after all the training sessions completed are analysed and discussed in the next chapter. A synthesis of the three cognitive linguistic approaches adopted in this study will be evaluated in Chapter 9.

Chapter 8 Post-tests and Interviews—Findings and Discussion

This chapter discusses the following results. To begin with, the results of the post-test are reported in the first section to investigate participants' mastery of particles in phrasal verbs after the training sessions. The results of the post-test are also used to present a preliminary discussion of how three cognitive linguistic approaches can exert an influence on teaching and learning particles in phrasal verbs in the context of EFL. It then moves on to review a comparison of the results between the pre- and post-test in order to provide some quantitative data as supporting evidence to complement the qualitative data. Finally, the interview data are analysed and presented across the training groups to explore participants' perception of the use of the three cognitive linguistic approaches (image schemas, categorisation, and frame semantics) with reference to the acquisition of particles in phrasal verbs.

8.1 Post-test Results of Image Schemas Training Group, Categorisation Training Group, and Frame Semantics Training Group

There are several purposes of conducting the post-test in this study. Firstly, the results of the post-test papers were to measure the outcomes of the participants' language performance after they completed the training sessions of learning particles in phrasal verbs in terms of three cognitive linguistic approaches (image schemas, categorisation and frame semantics). Moreover, the purpose of the post-tests was used to compare and contrast what cognitive linguistic approach is more facilitating than the others in the aspect of teaching and learning particles in conjunction with phrasal verbs. Lastly, the development of participants' concepts of the multiple meanings of particles in phrasal verbs: spatial senses, temporal senses and metaphorical senses were examined and reported.

Thirty question items were tested in the post-test. The content of the post-test paper was the same as in the pre-test paper; however, there was an extra section of multiple choice added for the participants to choose the meaning sense of a given phrasal verb. Three options: the meaning of space (S), the meaning of time (T), and the meaning of metaphor (M) were given, only one of which fitted the given sentence context. This section was designed to investigate to what extent the classification of multiple meanings of phrasal verbs can facilitate L2 learners' understanding of particles in phrasal verbs; furthermore, the results of this section were used to evaluate which cognitive linguistic approach can help L2 learners to acquire the multiple meanings of particles and phrasal verbs in a more systematic and efficient manner. The number of question items of distributing three types

of meaning sense (spatial meanings: 9 out of 30, temporal meanings: 3 out of 30 and metaphorical meanings: 18 out of 30) in thirty question items of the post-test paper was based on the frequency of usage from the corpus data of dictionary resources used in this study. The delayed post-test was conducted one week after the participants had completed all three training sessions. In order to avoid the participants having retained some memory of the pre-test, the order of the question items of the post-test was changed. The scoring of the correct question items in all three sections of the post-test were the same as conducted in the pre-test (see Section 4.2). One point was awarded to each correct answer applied to three sections of the test paper.

8.1.1 Quantitative Results

Table 8.1 compares the summary descriptive statistics for the post-test results of three training groups. This set of analyses examined the impact to the extent of which a cognitive linguistic approach can help Mandarin Chinese L2 learners to better understand particles in phrasal verbs. As can be seen from the table below, the Categorisation Training Group reported significantly higher scores in the post-test than the other two training groups in terms of Test Section 1 ($M = 14.73$, $SD = 3.56$), Test Section 2 ($M = 22.07$, $SD = 2.25$); Test Section 3 ($M = 20.67$, $SD = 4.01$). Additionally, the results to emerge from the data was that the Categorisation Training Group also scored higher correct answers in both Test Sections 1 and 3 ($M = 13.47$, $SD = 3.20$). The reason for calculating answers both provided accurately in Test Section 1 and Test Section 3 was to eliminate the effect of guessing. Overall, the results suggested that the Categorisation Training Group gained higher scores than the Image Schemas Training Group and the Frame Semantics Training Group in 4 parts: (1) Test Section 1, (2) Test Section 2, (3) Test Section 3, and (4) correct answers in both Test Section 1 and 3.

Table 8.1 Descriptive statistics for post-test scores in three training groups based on the cognitive linguistic approaches

Correct answers obtained in the test section	The training group					
	<u>Image schemas</u>		<u>Categorisation</u>		<u>Frame semantics</u>	
	(n = 15)		(n = 15)		(n = 18)	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Test Section 1: Particle	14.00	4.31	14.73	3.56	14.00	3.71
Test Section 2: STM	21.60	3.00	22.07	2.25	20.44	5.63

Test Section 3:	19.33	3.79	20.67	4.01	18.28	5.46
Chinese translation of the phrasal verb						
Both in Test Section 1 and 3	12.93	4.40	13.47	3.20	12.22	4.48

Note. STM = the meaning of space/ time/ metaphor

However, descriptive statistics can only help us to summarise the findings by describing general tendencies in the data and the overall spread of the scores (Dörnyei, 2007). It did not show any significant differences in mean scores among the three training groups. Further statistical measures, that is, a detailed breakdown of the scores between pre- and post-test by each individual question items, t-tests for analysing the relationship between the pre-test and the post-test in each individual training group and an ANOVA for comparing the scores in the post-test amongst the three training groups were implemented. The initial discussion of the overall quantitative results can be seen in Section 8.2.

8.1.2 Particles in Phrasal Verbs

Many of the research results demonstrated in the above section have only shown simple statistical analysis of the mean scores in relation to the three training groups. The details of the post-test (Appendix N) focusing on how the participants responded to the question items after receiving the training sessions based on three types of cognitive linguistic approach are still not clear. In the preliminary analysis, there were no differences in the responses identified amongst the three training groups; consequently, when analysing the data all the participants' responses were discussed in general regardless of the training groups in which the participants were placed. Based on detailed comparisons of the accuracy rate in two test sections (particles and Chinese translation) between the pre-test and the post-test, I have used the improved and/or unimproved outcomes of meaning construction on phrasal verbs as the organising principle for presenting the target particles, containing 'in', 'out', 'on', 'off', 'up', and 'down' in phrasal verbs in the following.

- 'In' in phrasal verbs: When it comes to the improved outcomes of meaning construction on phrasal verbs, two items, namely, 'come in' and 'take in' were identified in the data analysis. For the phrasal verb 'come in', the frequency of the misused particle 'up' has decreased from 23 to 14 out of 48 participants, compared with the results in the pre-test. One possible reason might be that some of the participants have adopted the L2 perspective to see 'the shoreline' as the boundary of a container and, to some degree, have eradicated the influence of the first language transfer. In terms of the second example of 'take in', it can be

argued that the universal concept UNDERSTANDING IS SEEING, suggested by Lakoff & Johnson (1980, 2003), is useful for improving L2 learners' understanding of the question item: 'Gazing up into his eyes, she seemed to take in all he said.' Turning to the unimproved outcomes, three items 'go in', 'get in', and 'put in' were found. The results of the participants' Chinese translation of the phrasal verbs revealed that some participants could provide the correct particle in response to the question; however, they failed to provide the equivalent Chinese translation. These findings suggest that in general it is easier to broaden L2 learners' vocabulary knowledge in the short term (e.g. a three-week training session) but it takes longer to develop their vocabulary depth.

- 'Out' in phrasal verbs: With respect to the improved outcomes of the post-test, two phrasal verbs, namely, 'get out' and 'take out' were found in the data analysis. For the results of 'get out' in the question: 'I told him to leave and get out.', a possible explanation for this might be that the participants were familiar with this usage, and the phrasal verb is constructed similarly between English and Mandarin users. Interestingly, as for the results of 'take out' in the question: 'They find a house, agree a price, and take out a mortgage through their building society.', 3 out of 48 participants provided the correct particle 'out' with its appropriate Chinese translation, compared with none of the participants provided correct answers in the pre-test. This finding is rather encouraging. However, some participants pointed out that they had difficulty understanding the word 'mortgage' in the given sentence and this resulted in their misunderstanding or non-understanding of the question item. When it comes to the unimproved outcomes, three phrasal verbs, consisting of 'come out', 'go out', and 'put out', were identified. The participants were observed to misuse the same particles as in the pre-test. For example, 'up' was misused in the question: 'The truth is beginning to come out...', 'off' was misapplied to the question: 'If you kick the ball and it goes out...', and 'down' and 'off' were misemployed in the question: 'Firemen tried to free the injured and put out the fire.' These findings are rather disappointing. One of the issues emerging from these findings is that it is a challenging task to transfer L2 learners' way of constructing meaning on phrasal verbs in a short-term session (e.g. three weeks in this study). However, an implication of this is the possibility that the application of cognitive linguistic approaches might be employed in long-term English education, such as from primary to secondary EFL language classes for L2 learners aged 6-18.
- 'On' in phrasal verbs: Although, compared with the results in the pre-test the particles 'up' and 'in' were observed to be misemployed, the findings of the post-test were still encouraging. Regarding the improved outcomes, two phrasal verbs, i.e. 'go on' and 'take on' were identified in the analysis. It is worth noting the case

of 'take on'. The results suggested that cognitive linguistic approaches exert a positive effect, helping participants to distinguish the conceptual meanings between 'in' and 'on' in the question: 'Don't take on more responsibilities than you can handle.' Unfortunately, 11 out of 48 participants still made the error of using 'up' in this question. In terms of unimproved outcomes, 'up' was identified to be commonly misused in three examples, namely 'come on', 'get on', and 'put on'. A possible explanation for these results may be the same as in the pre-test. These errors could be attributed to the negative effect of the language transfer on the application of false equivalencies. Fortunately, the overall results suggested that cognitive linguistic approaches could exert a positive effect, to some extent, on improving the participants' understanding of 'on' in phrasal verbs despite the fact that it was identified as one of the most challenging particles for L2 learners to cope with.

- 'Off' in phrasal verbs: From the data analysis of the post-test, the accuracy rate of three phrasal verbs ('come off': 30 out of 48 participants, 'go off': 22 out of 48 participants, and 'take off': 35 out of 48 participants) were calculated and reported as improved items. In general, the misused particles were still identified to be the same as in the pre-test, according to the results for these three phrasal verbs. An interesting instance relating to the results of 'take off' is worth noting, in that this phrasal verb is taught extensively in EFL textbooks. This finding may help EFL teachers to understand the importance of explicit teaching applied to learning phrasal verbs. On the contrary, two phrasal verbs, i.e. 'get off' and 'put off' were found to be the unimproved items. As regards 'get off' in the question: 'He is likely to get off with a small fine,', only 3 out of 48 participants provided correct answers both in the test sections of particle and Chinese translation. When the participants were asked to explain how they responded to this question item, they indicated that the word 'fine' in the given sentence caused them to misunderstand the whole context. Another factor that caused the participants' confusion can be seen in the example 'put off'. The results suggest that the participants struggled to conceptualise the abstract meanings of this particular phrasal verb in their L1, because the majority of participants did not provide the equivalent Chinese translation corresponding to this phrasal verb.
- 'Up' in phrasal verbs: Only one phrasal verb 'put up' (e.g. 'The superintendent put up a notice on the door advising residents to conserve water.') was found to be improved. The rate of accuracy increased from 10 out of 48 participants in the pre-test to 24 out of 48 participants in the post-test. However, some problems with distinguishing the use of 'up' and 'on' remained even after the training sessions. Unfortunately, four phrasal verbs were identified in the category of unimproved outcomes. Two broad themes emerged from the analysis. First, the phrasal verb

'go up' and 'get up' both indicated a high rate of accuracy, and the results were similar to the pre-test. One possible explanation for this could be that there was not enough room for improvement. Second, the same types of difficulty existed in the phrasal verb 'come up' and 'take up'. For 'come up', the results revealed that 18 out of 48 participants remained puzzled by the use of 'up' and 'out' in the question: 'I don't care how well you planned, something always comes up that you didn't think of.' Concerning 'take up' in the question: 'The aim was not to take up valuable time with the usual boring pictures.', the results suggested that there was no improvement in understanding the temporal meaning of this phrasal verb in a given sentence between the pre-test and the post-test.

- 'Down' in phrasal verbs: The results suggest that 'come down' and 'take down' were improved items in the data comparison. The rate of accuracy for the phrasal verbs increased from 19 to 26 out of 48 participants for 'come down' and 24 to 30 out of 48 participants for 'take down' respectively. It is difficult to explain these results, but it might be that the participants benefitted from the training sessions by highlighting the importance of the spatial senses of phrasal verbs. However, misused particles: 'out' in', and 'off' were identified, and they were the same as in the pre-test. When it comes to the unimproved outcomes, two themes emerged from the analysis. First, the results of 'get down' and 'put down' showed a similar rate of accuracy in the pre-test. Second, the rate of accuracy for the phrasal verb 'go down' in the question: 'if a computer goes down, it stops functioning temporarily.' decreased from 19 to 11 out of 48 participants. Interestingly, the training sessions were observed to have no positive effect on helping the participants improve their understanding of this phrasal verb in a given sentence context. However, with a small sample size caution must be applied, as the findings might not be transferable to all L2 learners.

Having described how the participants from three training groups construct meaning on six target particles in phrasal verbs in the data comparison, it is necessary to discuss the overall examination of the pre-test and the post-test in the subsequent section.

8.2 Initial Discussion of Pre-test and Post-test Results

This section is divided into two subsections, which contain an initial discussion of quantitative and qualitative results. When it comes to quantitative results, t-tests were used to compare the results of the pre-test and post-test in each training group based on the three cognitive linguistic approaches. Furthermore, an ANOVA test was employed to compare the mean scores of the post-test amongst the three training groups. Lastly, a detailed breakdown of the scores in the pre- and post-test was presented to scrutinise

whether participants' understanding of particles of phrasal verbs have improved or not. Turning to the qualitative findings, the way in which L2 learners constructed meanings on target particles within phrasal verbs was examined by analysing the results obtained from the pre-test and the post-test.

8.2.1 Quantitative Results

Table 8.2 below compares the results between the pre-test and the post-test in the Image Schemas Training Group. A paired-samples t-test indicated that scores were significantly higher for the post-test in terms of three aspects: (1) the test section of particle, $t(14) = -3.70$, $p < .05$, (2) the test section of Chinese translation of the phrasal verb, $t(14) = -3.15$, $p < .05$, and (3) correct answers in both of the test sections, $t(14) = -3.27$, $p < .05$.

According to Cohen's (1998: 284-287) guidelines for interpreting the value of Eta squared, the magnitude of the effect of training sessions on the above test sections in the mean scores was large. Given my Eta squared value of .33 for the test section of particle, .41 for the test section of Chinese translation of the phrasal verb, and .43 for both the test sections, there was a significant difference between the scores in the pre-test and the post-test for the Image Schemas Training Group.

Table 8.2 Paired-samples t-tests of the pre-test and post-test in the Image Schemas Training Group (n = 15)

Test section	<i>M</i> (max: 30 points)	<i>SD</i>	<i>d</i>	<i>t</i>	<i>Effect size^a</i>
Particle in pre-test & post-test			14	-3.70*	.33
Particle in pre-test	11.80	4.20			
Particle in post-test	14.00	4.30			
CT in pre-test & post-test			14	-3.15*	.41
CT in pre-test	16.80	4.87			
CT in post-test	19.33	3.80			
Particle and CT in pre-test & post-test			14	-3.27*	.43
Particle and CT in pre-test	10.47	3.96			
Particle and CT in post-test	12.93	4.40			

* $p < .05$

^aEta squared.

Note. CT = Chinese translation of the phrasal verb. M = mean score. SD = standard deviation. d = effect size

The results of the pre-test and the post-test obtained from the analysis of the Categorisation Training Group are set out in Table 8.3 below. A paired-samples t-test indicated that significant differences were found in three areas: (1) the test section of particle, $t(14) = -2.98, p < .05$ (2) the test section of Chinese translation of the phrasal verb, $t(14) = -2.90, p < .05$ and (3) correct answers in both of the test sections, $t(14) = -3.37, p < .05$. The Eta squared statistics also indicated that a large effect size was found in the three test sections—the test section of particle (.39), the test section of Chinese translation of the phrasal verb (.38), and both the test sections (.45). There was a significant difference between the pre-test and the post-test for the Categorisation Training Group.

Table 8.3 Paired-samples t-tests of the pre-test and post-test in the Categorisation Training Group (n =15)

Test section	M (max: 30 points)	SD	d	t	Effect size ^a
Particle in pre-test & post-test			14	-2.98*	.39
Particle in pre-test	13.20	3.47			
Particle in post-test	14.73	3.56			
CT in pre-test & post-test			14	-2.90*	.38
CT in pre-test	18.60	5.30			
CT in post-test	20.67	4.01			
Particle and CT in pre-test & post-test			14	-3.37*	.45
Particle and CT in pre-test	11.80	4.41			
Particle and CT in post-test	13.47	3.20			

* $p < .05$

^aEta squared.

Note. CT = Chinese translation of the phrasal verb. M = mean score, SD = standard deviation. d = effect size

The results obtained from the paired-samples t-tests analysis of the Frame Semantics Training Group are presented in Table 8.4 below. The most striking result to emerge from the data is that significant differences at the $p = .05$ or smaller level only exist in two test

sections– the test section of particle, $t(17) = -2.75$, $p < .05$ and correct answers in both the test sections of particle and Chinese translation of the phrasal verb, $t(17) = -2.37$, $p < .05$. It can be concluded that there was no significant difference between the pre-test and the post-test in the section testing the Chinese translation of the phrasal verb, despite the fact that the mean scores for this test section were different between the pre-test and the post-test.

The calculation of Eta squared was only applied to two test sections, due to the fact that significant differences were found. The values of Eta squared statistics revealed that a large effect size was found in the particle test section (.31) and correct answers in both the test sections (.29). These results, as shown in Table 8.4, indicate that there was a significant difference between the mean scores of the pre-test and the post-test in the particle test section, but no significant differences were found between pre-test and post-test in the section testing the Chinese translation of the phrasal verb for the Frame Semantics Training Group.

Table 8.4 Paired-samples t-tests of the pre-test and post-test in the Frame Semantics Training Group (n =18)

Test section	<i>M (max: 30 points)</i>	<i>SD</i>	<i>d</i>	<i>t</i>	<i>Effect size^a</i>
Particle in pre-test & post-test			17	-2.75*	.31
Particle in pre-test	11.89	2.78			
Particle in post-test	14.00	3.71			
CT in pre-test & post-test			17	-.748	
CT in pre-test	17.67	4.79			
CT in post-test	18.28	5.46			
Particle and CT in pre-test & post-test			17	-2.37*	.29
Particle and CT in pre-test	10.56	3.63			
Particle and CT in post-test	12.22	4.48			

* $p < .05$

^aEta squared.

Note. CT = Chinese translation of the phrasal verb. M = mean score. SD = standard deviation. d = effect size

Despite the fact that no increase in the test section of Chinese translation of the phrasal verb in the Frame Semantics Training Group was detected, generally, the t-tests results of three adopted cognitive linguistic approaches (images schemas, categorisation, and

frame semantics) in this study show that employing training sessions based on the cognitive linguistic approaches to teach and learn particles in phrasal verbs in EFL has an effect on facilitating the understanding of polysemous phrasal verbs, in terms of accuracy of using the appropriate particles in phrasal verbs and language transfer (equivalent Chinese translations). However, with a small sample size (15 participants in the Image Schemas Training Group, 15 participants in the Categorisation Training Group, and 18 participants in the Frame Semantics Training Group), caution must be applied, as the findings might not be transferable to all EFL learners. Together these results are in agreement with the ideas of Lu & Sun (2017), who suggest that cognitive linguistic approaches have the potential to assist Mandarin Chinese L2 learners in the process of teaching and learning English particles in phrasal verbs.

Turning now to a comparison of the post-test results with respect to the scores in two sections: (1) correct answers in both test sections of particle and Chinese translation of the phrasal verb, and (2) meanings of space, time or metaphor from the analysis of the three training groups, a one-way ANOVA F-test was used. In Table 4.7 below, a one-way between subjects ANOVA indicated that cognitive linguistic approaches had no significant effects on two types of mean score as regarding correct answers in both test sections of particle and Chinese translation of the phrasal verb, with $F(2, 45) = .38$, $p = .68$ and meanings of space, time or metaphor, $F(2, 45) = .71$, $p = .50$ at the $p < .05$ level for the three training groups. These findings were not the expected outcome.

Table 8.5 A comparison of ANOVA results of the post-test across three training groups based on cognitive linguistic approaches (n = 48)

	<u>Correct answers in both particle and CT</u>				<u>Meanings of S/ T/ M</u>		
	df	<i>F</i>	<i>p</i>		df	<i>F</i>	<i>p</i>
Between Groups	2	.38	.68		2	.71	.50
Within Groups	45				45		
Total	47				47		

* $p < .05$

Note. CT = Chinese Translation of the phrasal verb. S/T/M = space, time, or metaphor

Taken together, these results suggest that participants for three employed cognitive linguistic approaches did have improvements in terms of two aspects: (1) correct answers in both test sections of particle and Chinese translation of the phrasal verb, and (2) meanings of space, time or metaphor in the post-test, but improvements across these two conditions were not significantly different from one another. However, it should be noted that with a small sample size these data must be interpreted with caution, as these findings cannot be extrapolated to all L2 learners. These findings will doubtless be much

scrutinised. There is abundant room for further progress in determining the specific effects that each cognitive linguistic approach can exert.

In order to offer in depth insights into the test results, a detailed breakdown of scores, gained by all participants from the three training groups in the pre- and post-test, is illustrated in Table 8.6, Table 8.7, Table 8.8 and Table 8.9 below.

Table 8.6 shows the scores gained by participants for the Image Schemas Training Group in the pre- and post-test. 15 target phrasal verbs were identified as improved items and 15 unimproved target phrasal verbs, including 5 the-same-scored items ('come out', 'come up', 'go out', 'get off', and 'take off') and 10 lower-scored items.

Table 8.6 Participants for the Image Schemas Training Group scoring both correct answers in test section of particle and Chinese translation in the pre- and post-test, broken down by target phrasal verb (n = 15)

<u>Phrasal Verb</u>	<u>Pre-test</u>	<u>Post-test</u>
Come in	5	11
Come out*	6	6
Come on	6	2
Come off	8	11
Come up	5	5
Come down	6	10
Go in	2	1
Go out*	5	5
Go on	3	6
Go off	4	7
Go up	7	13
Go down	9	4
Get in	3	4
Get out	13	12
Get on	3	2
Get off*	1	1
Get up	8	11
Get down*	11	11
Put in	2	1
Put out	1	5
Put on	6	5

Put off	5	4
Put up	3	9
Put down	2	8
Take in	7	5
Take out	0	1
Take on	6	9
Take off*	11	11
Take up	2	5
Take down	7	10

*The same-scored items in the pre- and post-test

In Table 8.7, the results demonstrate that participants for the Categorisation Training Group gained higher scores in 17 target phrasal verbs, the same scores in 3 target phrasal verbs ('go in', 'go up', and 'put on'), and lower scores in 10 target phrasal verbs in the post-test.

Table 8.7 Participants for the Categorisation Training Group scoring both correct answers in test section of particle and Chinese translation in the pre- and post-test, broken down by target phrasal verb (n = 15)

<u>Phrasal Verb</u>	<u>Pre-test</u>	<u>Post-test</u>
Come in	2	7
Come out	4	6
Come on	4	7
Come off	11	10
Come up	6	5
Come down	7	6
Go in*	1	1
Go out	10	11
Go on	4	8
Go off	5	7
Go up*	10	10
Go down	5	3
Get in	2	6
Get out	15	12
Get on	3	6
Get off	0	1
Get up	12	11

Get down	11	10
Put in	5	2
Put out	4	7
Put on*	7	7
Put off	6	4
Put up	5	8
Put down	8	3
Take in	5	9
Take out	0	1
Take on	6	9
Take off	10	12
Take up	2	3
Take down	7	9

*The same-scored items in the pre- and post-test

In Table 8.8, the findings indicate that participants for the Frame Semantics Training Group gained higher scores in 18 target phrasal verbs, the same scores in 4 target phrasal verbs ('go on', 'get in', 'get up', and 'put out'), and lower scores in 8 target phrasal verbs in the post-test.

Table 8.8 Participants for the Frame Semantics Training Group scoring both correct answers in test section of particle and Chinese translation in the pre- and post-test, broken down by target phrasal verb (n = 18)

<u>Phrasal Verb</u>	<u>Pre-test</u>	<u>Post-test</u>
Come in	5	10
Come out	4	8
Come on	8	4
Come off	8	9
Come up	6	7
Come down	6	10
Go in	5	2
Go out	8	4
Go on*	7	7
Go off	5	8
Go up	10	13
Go down	5	4
Get in*	4	4

Get out	13	16
Get on	6	5
Get off	0	1
Get up*	13	13
Get down	15	14
Put in	4	6
Put out*	2	2
Put on	8	9
Put off	4	7
Put up	2	7
Put down	6	4
Take in	7	6
Take out	0	1
Take on	7	14
Take off	11	12
Take up	1	2
Take down	0	11

*The same-scored items in the pre- and post-test

As shown in Table 8.9, 19 target phrasal verbs were identified as improved items, 11 target phrasal verbs were regarded as unimproved items, that is, 3 target phrasal verbs: 'come up', 'put on', and 'put off' were scored the same and 8 target phrasal verbs were scored lower in the post-test from the analysis of the dataset covering all of the three training groups.

Table 8.9 Participants from the three training groups scoring both correct answers in test section of particle and Chinese translation in the pre- and post-test, broken down by target phrasal verb (n = 48)

<u>Phrasal Verb</u>	<u>Pre-test</u>	<u>Post-test</u>
Come in	12	28
Come out	14	20
Come on	18	13
Come off	27	30
Come up*	17	17
Come down	19	26
Go in	8	4
Go out	23	20

Go on	14	21
Go off	14	22
Go up	27	36
Go down	19	11
Get in	9	14
Get out	41	40
Get on	12	13
Get off	1	3
Get up	33	35
Get down	27	35
Put in	11	9
Put out	7	14
Put on*	21	21
Put off*	15	15
Put up	10	24
Put down	16	15
Take in	19	20
Take out	0	3
Take on	19	32
Take off	32	35
Take up	5	10
Take down	24	30

*The same-scored items in the pre- and post-test

It is encouraging to compare these figures in Table 8.6, 8.7, 8.8, and 8.9 that in general the number of improved items of target phrasal verbs is higher than the unimproved ones. However, the findings of the current study do not explain the discrepancy between the improved and unimproved items. More research on this topic needs to be undertaken before the particular type of learning difficulty that affects the acquisition of individual phrasal verbs is more clearly understood. Having discussed the statistical results between the pre-and post-test, I will now move on to review the qualitative findings with reference to target particles in phrasal verbs in the pre- and post-test.

8.2.2 Particles in Phrasal Verbs

My second research question aims to analyse the impact of cognitive linguistic approaches on helping Mandarin Chinese learners of English to understand particles in phrasal verbs. Apart from analysing the statistical results of the pre-test and the post-test,

examining the details of the answers given in the pre- and post- test papers would provide further insights into the issues that L2 learners constantly encounter while attempting to understand particles and phrasal verbs. In this section, I outline the results emerging from the pre- and the post-test, focusing on discussing six target particles in phrasal verbs.

In the case of 'in' in phrasal verbs, there are several possible explanations for the results of the pre- and post-test. Firstly, it seems that using a container schema is an innovative approach to teaching and learning 'in' in phrasal verbs and learners need more time to process the abstract meanings of phrasal verbs. While participants were asked to answer two question items in relation to temporal meaning (e.g. '...put in time to keep the strike going.') and the metaphorical meaning (e.g. 'The Conservatives got in...') in the post-test, the results revealed that some of them had difficulty inferring from what the container concepts exhibit that both time and a political party can be objects moving into a container. Secondly, the findings suggested that a number of participants tended to misapply the particle 'up' to this particular question item: '...the tide comes in...' even though the container concept of shorelines was clearly explained in the training sessions. One possible explanation for these results may be that the L1 mental lexicon is so entrenched that it is not possible to transfer L2 encyclopaedic knowledge immediately to help the participants construct accurate meanings on phrasal verbs. However, more research on this topic needs to be undertaken before the association between the first language transfer and using the salient features of L2 encyclopaedic knowledge to access the meanings of phrasal verbs is more clearly understood.

As far as the issue of 'out' in phrasal verbs is concerned, the data emerged from the pre- and post-test (Section 4.2.2. and 8.1.2) showed that firstly some of the participants were confused over the uses between 'out' and 'off' in the question items involving the phrasal verb 'go out', 'get out', and 'put out'. Secondly, the results of both tests suggested that the participants did not fully develop a sense of how to apply the concepts of 'out' metaphorically to a range of contexts. There are several possible explanations for these results. It might be that the participants are influenced by the Chinese character '離' because this character covers a sense of the English particles 'out' and 'off', depending on the contexts in use. That these participants found difficulty understanding 'out' in phrasal verbs, to some degree is due to misuse of the first language transfer. Moreover, the second possible reason explaining the problems in understanding metaphorical context seems to do with the lack of adequate exposure to L2 vocabulary in breadth and depth.

With respect to the issue of 'on' in phrasal verbs, the results of both tests revealed that the majority of participants failed to distinguish the application of 'on' and 'up' to the question

items in relation to the phrasal verbs 'come on', 'put on', and 'take on'. Further confusion about the uses of 'on' and 'in' were found in the question item involving 'take on'. One possible explanation for the misunderstanding of 'on' and 'up' could be the misapplication of the Chinese character '上' to the usage of 'up' and 'on', since this character contains both concepts in Mandarin Chinese. However, it is encouraging that the results from the post-test showed that the number of participants who misused 'on' and 'in' had decreased. It is difficult to explain this, but it might be that the participants benefitted from the training sessions to help them to distinguish some phrasal verbs in use.

When it comes to the issue of the particle 'off' in phrasal verbs, there are three main findings in the pre- and the post-test. Firstly, the rate of accuracy for the phrasal verbs 'come off' and 'take off' was higher than for the phrasal verb 'go off', 'put off', and 'get off'. It can be argued that 'come off' and 'take off' are commonly used by these participants, and they can easily grasp the meanings of such familiar items. Secondly, one of the meanings embraced by 'go off' describing a scenario of firing a gun or weapon was investigated as one of the most difficult question items for Mandarin Chinese English learners to answer in the tests. It is assumed that these L2 learners tended to adopt their L1 transfer to understand this particular usage of 'go off', as the equivalent Chinese translation of '開槍' (literal meaning: *on the gun*) was provided by the majority of the participants in the test papers. These findings showed that Mandarin-speaking L2 learners hold the opposite perspective to conceptualise the sense of firing an explosive device, compared with native English speakers. Lastly, the results revealed that 'get off' and 'put off' were also difficult items to understand. In analysing the data, it can be seen that the collocated noun phrase 'a small fine' was identified as a factor causing difficulty understanding the abstract meaning of the phrasal verb 'get off'. A possible explanation for these results may be the lack of L2 vocabulary as well as collocational awareness. Turning now to the phrasal verb 'put off', after the tests were completed, some of the participants pointed out that they were more familiar with the temporal meanings than the metaphorical meanings of 'put off', but the training sessions may have had a negative effect causing their confusion over the temporal and metaphorical senses of this particular phrasal verb. However, this finding is not disappointing because it has an implication highlighting the importance of metalinguistic knowledge; that is, L2 learners can develop their learning autonomy for further processing new information.

As far as the topic of 'up' in phrasal verbs is concerned, the results revealed that Mandarin Chinese English learners tended to misuse the particles 'out' and 'on'. The relevant examples were identified in the analysis of 'come up' and 'put up' in the both tests. One possible reason could be the misapplication of language transfer. As discussed above, the

false equivalencies of the Chinese character ‘上’ would give rise to L2 learners’ misunderstanding ‘up’ and ‘on’. Another issue relating to there being no significant differences in the data comparison were found in the aspect of improving participants’ understanding of the temporal meaning of the phrasal verb ‘take up’, despite the fact that comparing the pre- and post-test results showed that the understanding of ‘up’ spatially has been improved. In summary, these results for ‘up’ in phrasal verbs show that the cognitive linguistic approach is not a quick answer for a way to deal with the complex meanings of phrasal verbs in the short term. This is an important issue for future research.

In the case of ‘down’ in phrasal verbs, the interesting finding was that the participants had difficulty distinguishing the differences between ‘down’ and ‘off’. The relevant examples were identified in the analysis of the question items of ‘go down’, ‘put down’ and ‘take down’. One possible influence could be the multiple meanings of the Chinese character ‘下’ because it can be used to reflect a range of the concepts of English particles, such as ‘down’ (e.g. 底下, meaning: in a lower position), ‘off’ (e.g. 下車, meaning: getting off a vehicle), and ‘in’ (e.g. 下麵條, meaning: putting noodles in a pot). This has important implications for raising L2 learners’ awareness of the employment of false equivalencies.

Considering all of the above, several findings have emerged from the pre- and post-test. Firstly, comparing the statistical results obtained from the pre- and post-test the participants gained higher scores if they were more familiar with the phrasal verbs and the sentence contexts, regardless of whether the phrasal verb is considered to have similar or unique meaning construction for English users and Mandarin-speaking English learners. The evidence from these results suggests that more exposure to the uses of phrasal verbs, that is, explicit teaching and implicit learning, has a beneficial effect on improving EFL learners’ understanding of phrasal verbs. Secondly, the results of the pre- and post-test revealed three main types of difficulty constantly faced by Mandarin Chinese EFL learners in terms of constructing meanings on particles in phrasal verbs. The first type of difficulty is that the misuse of first language transfer gives rise to the misapplication of particles in phrasal verbs. Types of difficulty identified in the data analysis include false L2 equivalencies and confusion over particles in different uses. A possible explanation for this might be that it is difficult to switch L2 learners’ L1 mental lexicon to L2 encyclopaedic knowledge in the short term, due to the fact that culturally-embedded information is to some extent deeply entrenched, as can be seen in the examples associated with the unique meaning construction on phrasal verbs between English and Mandarin Chinese users. However, the findings of this study do not support previous research, because some studies suggest that for adult learners it is better to provide short-term teaching of

phrasal verbs by adopting a cognitive linguistic approach (Boers, 2000; Condon, 2008; Kövecses & Szabó, 1996; Kurtyka, 2001; Yasuda, 2010; Talebinejad & Sadri, 2013). This study is in agreement only with Lu & Sun's (2017) findings, which showed that applying metaphor association to teaching phrasal verbs has a positive effect on Chinese EFL learners' long-term memory but has little effect on their short-term memory.

Turning now to the second type of difficulty, which is that the issue of non-understanding or misunderstanding of abstract meanings, i.e. temporal and metaphorical meanings, recurred throughout the dataset. Finally, the lack of awareness of collocational usage and contextual clues may be regarded as a further type of difficulty, as emerged from the data analysis.

By contrast, the results also suggest that L2 learners' understanding of spatial concepts was improved since cognitive linguists agree that concrete sense is the foundation for abstract meaning to rest upon. Compared with the acquisition of the spatial concepts, it seems that figurative uses, i.e. meanings of time and metaphor are more difficult for learners to understand in the short term. In Deignan's (2005) corpus study, she observed that a metaphorical sense usually exhibits a specific type of fixed expression. Gries (2006) notes that more prototypical concepts can usually be described in a more flexible manner. Littlemore and MacArthur's (2007; cited in Littlemore, 2009) findings corroborate the ideas of Deignan and Gries, who suggest that 'the more figurative uses (which might be seen as lying at the periphery of the radial category) had very marked phraseologies. These phraseological patterns correlated strongly with particular meanings.' As a result, these findings have an important implication for EFL educators looking to develop an explicit teaching of metaphorical extensions of phrasal verbs in the longer term, in order to provide opportunities for L2 learners to gain more exposure to the figurative uses of phrasal verbs.

It can be concluded that based on in-depth analysis of the pre- and post-test results the overall evaluation of three cognitive linguistic approaches, i.e. image schemas, categorisation and frame semantics, as employed in this study may be considered as innovative methods that can be further applied to EFL contexts. This is because, to some extent, they can have beneficial effects helping Mandarin-speaking English learners to acquire phrasal verbs.

8.3 Interviews with Image Schemas Training Group, Categorisation Training Group, and Frame Semantics Training Group

A semi-structured interview sought to examine the emerging role of the cognitive linguistic approach of image schemas, categorisation and frame semantics in the context of teaching and learning of particles in phrasal verbs. The dataset were collected after all the training sessions and the post-test were completed. Six question items (see Appendix O) were investigated in each interview that was assisted with audio-recording and note-taking in order to retain all the details of interviews without interruption. The details of five randomly-chosen participants from each of the training groups are presented as follows:

- Image Schemas Training Group: two from UK universities (IS-01 and IS-04) and three from Taiwanese universities (IS-05, IS-06, and IS-08) were interviewed.
- Categorisation Training Group: two from the universities in the UK (CG-03 and CG-05) and three from the higher education institutes in Taiwan (CG-09, CG-12, and CG-13), were randomly selected for the one-to-one interview.
- Frame Semantics Training Group: two from UK universities (FS-02 and FS-06) and three from universities in Taiwan (FS-08, FS-11 and FS-18), were randomly chosen for individual interview.

The biodata of these fifteen interviewees is presented in detail in Table 4.1 (p.69). The interview data was analysed by transcribing the interview responses, coding, and categorising. Examining the interview content, similar patterns were discerned and given codes (see Section 3.3.4). The results reported in this section will be further discussed in Chapter 9 in order to evaluate the details of facilitation of each cognitive linguistic approach employed in this study. The following subsections are concerned with the results of six question items emerging from the data analysis.

8.3.1 English L2 Learners' Viewpoints about Understanding Particles in Phrasal Verbs

The results gathered from the participants for the Image Schemas Training Group revealed that all of the interviewees agreed that understanding particles helped their acquisition of phrasal verbs. Participants IS-05, IS-06, and IS-08 indicated that the visual images of particles were particularly useful for them to grasp the conceptual meanings of particles. Moreover, Participants IS-05 and IS-08 added that using visual representations was effective in memorising the multiple meanings of phrasal verbs. Although Participant IS-01 felt that it became easier for him to understand phrasal verbs by adopting the container concepts to understand 'in' and 'out', he still needed more time to conceptualise what types of meanings, in terms of space, time, or metaphor, were embedded in the given context.

Accordingly, two out of five participating interviewees pointed out that understanding phrasal verbs not only enhanced their memory retention in the learning process, but also helped them improve the quality of their English communication. For example, Participant IS-01 pointed out that 'I can now use phrasal verbs more easily and make my conversation in English more interesting.' Additionally, Participant IS-04 indicated that '... it also helps me to use or say something more like a native speaker.' These findings may help us to understand how image schemas can exert positive effects on improving EFL learners' command of learning and communication.

All of those interviewed (the participants for the Categorisation Training Group) expressed the belief that they felt understanding the meaning of particles helped them to understand the meaning of phrasal verbs. The overall response to this question was positive. The respondents were further asked to explain how they felt this method to be useful. Five main reasons were identified, and these along with the data extracts are provided in the following:

- It highlights the importance of the metaphorical meanings within phrasal verbs. For example, Participant CG-03: 'After learning "up" and "down", I can know how people use these particles to represent their feelings, such as HAPPY IS UP and UNHAPPY IS DOWN. Before, the emotional expressions are the most confusing parts for me.'
- The three-layer meaning classification of particles encompassing meanings of space, time and metaphor provides an economical strategy to construct meanings on phrasal verbs. For example, Participant CG-05: 'Now, when encountering phrasal verbs, I will think about the meanings of space, time or metaphor. I use these to process the information in my brain in a much faster way without asking people to repeat what they said. I think this is beneficial.'
- It helps L2 learners to clarify the confusion over the uses of different particles in phrasal verbs. For example, Participant CG-05: 'I can even point out the mistakes when people have the wrong uses of phrasal verbs such as the differences between 'take up' and 'take on'. I would like to pass this knowledge to other people to tell them the correct usage.'
- It helps L2 learners to learn particles in phrasal verbs in a way that is similar to the first language acquisition. For instance, Participant CG-12: 'I don't have this experience of understanding particles in order to understand phrasal verbs in my past learning. These training sessions gave me a way of looking particles in a native English speaker's eyes. As a Mandarin speaker, I would never figure out a way like this.'

- It helps to raise L2 learners' awareness of the multiple meanings of phrasal verbs. For instance, Participant CG-13: 'Absolutely, it helps me understand the different meanings of phrasal verbs. I can use the situations of space, time or metaphor to see what's going on about the phrasal verbs.'

These results suggested that the respondents were positive about this question item; however, there was a paradox surrounding this understanding issue. Participants CG-09 and CG-19 indicated that the weakness of using particles to understand phrasal verbs is that it needs a longer period to process deeper information. Therefore, they felt that this cognitive linguistic approach would not provide any benefits while taking a test or exam, on account of time pressure. This discrepancy can be attributed to two different perspectives on the nature of learning purposes.

In response to Question 1: 'Do you feel that understanding the meanings of the particles has helped you to understand the meanings of the phrasal verbs?' the overall response (the participants for the Frame Semantics Training Group) to this item was very positive. All those who responded to this question felt that this method had provided them with an opportunity to learn English phrasal verbs in a new way. Based on the learning experience provided in the training sessions, they said that now they can 'imagine, guess, think or compare' the meanings of phrasal verbs. This is an issue recognised by some cognitive linguists (Evans and Green, 2006: 225) who argue that 'Humans have the ability to imagine or stimulate a conceptual entity, such as an action involving a particular object, based on a particular frame.' That is, human beings are able to rehearse mentally the steps involving a daily activity, such as pouring a cup of tea. These results match those claimed in earlier studies (Fillmore, 1985a; Littlemore, 2009) that L2 learners can grasp the meanings of phrasal verbs better by stimulating the semantic knowledge representation of particles.

8.3.2 English L2 Learners' Viewpoints about the Usefulness of the Cognitive Linguistic Approaches to Learning Phrasal Verbs

In response to the question: 'Which part(s) of the training session do you find the most useful to help you understand the phrasal verbs?' a range of responses was elicited. When it comes to the Image Schemas Training Group, Participants IS-01 and IS-08 indicated that explicit teaching of the conceptual meanings of particles in phrasal verbs helped their process of learning, as they said 'If we looked at the worksheet with only pictures by ourselves, we would find it is a little bit complicated to understand.' It seems that the explicit instruction may play a crucial role in assisting L2 learners to employ visual images in terms of their understanding particles and phrasal verbs. Visual images can

also be useful in enhancing L2 learners' memory retention, as Participant IS-05 reported 'I use images to memorise phrasal verbs.' Other responses to the benefits of the employment of image schemas contain the usefulness of sample sentences (Participant IS-04) and a system of meaning categories (Participant IS-06) provided in the worksheets.

Another important finding was that the majority of those interviewed reported that the in-class tasks provided them with the opportunity to discuss their opinions with others in such a way that they could link the theory to practice (suggested by Participant IS-08) or clarify some uncertainty about the usage of particles in phrasal verbs, as Participant IS-04 responded: 'The practice part is really difficult for me. Discussing with others helps me a lot.' Understandably, real-time linguistic production requires more cognitive effort from L2 learners, which causes them to slow down and think more deliberately.

Three benefits of utilising the cognitive linguistic approach of categorisation were identified in the interview data. These benefits were: (1) providing L2 learners with the opportunity to explore multiple meanings of phrasal verbs, (2) applying the theory of categorisation to practical use, and (3) a new learning approach for phrasal verbs.

To begin with, for the majority of the participating interviewees, their experience with the cognitive linguistic approach of categorisation was clearly positive. Some of them stated that spatial meaning provided a base or foundation on which to rest their construction of extended meanings. Those who responded in this way reported that using a radial category diagram illustrating basic and extended meanings had helped them to grasp the multiple meanings of phrasal verbs.

The second benefit was the feedback gained from discussing their linguistic output with other participants. Most of the interviewees commented that practising and discussing the concepts of categorisation not only helped them to clarify some confusion over the usage of phrasal verbs very quickly in the training sessions, but also enhanced their memory retention of the theory of categorisation that they could use in future practice.

The final benefit identified in the interview data came from one individual who stated that the training sessions had offered him an opportunity to use the phrasal verbs creatively. Participant CG-12 suggested that: 'This approach has changed my mind to look at the phrasal verbs.'

In response to Question 2: 'Which part(s) of the training session do you find the most useful to help you understand the phrasal verbs?' almost all the participating interviewees (the Frame Semantics Training Group) said that the in-class task was the most useful

activity in the training session. They commented that they considered it to be a brainstorming, creative and teamwork task that provided them with an opportunity to practise the usage of phrasal verbs by means of connecting the meaning senses of one particular particle in phrasal verbs immediately after the concepts were given. They further indicated that this type of learning activity had some beneficial effects in that it helped them better understand the meanings of phrasal verbs and enhance their memory retention of the concepts of particles in phrasal verbs. For example, two interviewees explained the value they felt in using a set of phrasal verbs to produce a story. Their data extracts are shown below:

- Participant FS-02: 'It is kind of helpful for me to remember the whole context. How the phrasal verbs work? What kind of impression can they give me? Even I don't remember all the phrasal verbs, but I can still understand the story and guess the meaning of that phrasal verb. This is very important.'
- Participant FS-06: 'While creating a story for the in-class task, we will think the meanings of space, time, and metaphor for that particular set of phrasal verbs and the occasions for using them. Does the meaning of the phrasal verb fit the story or not? And then we combine all the meanings of those phrasal verbs to create a story.'

Taken together, these results suggested that these L2 learners benefitted from: (1) the development of L2 encyclopaedic knowledge combined with the semantic frames for understanding and enhancing memory retention of phrasal verbs; (2) the application of L2 language flexibility and creativity via producing linguistic output.

8.3.3 English L2 Learners' Viewpoints about Utilizing Three Types of Meaning Categories to Understand Particles in Phrasal Verbs

In response to Question 3: 'Do you find it helpful to understand a phrasal verb through its different senses?' 4 out of 5 (Participants IS-04, IS-05, IS-06, and IS-08 of the Image Schemas Training Group) interviewees felt that employing the spatial meanings of particles has a beneficial effect on understanding the temporal and metaphorical senses of phrasal verbs. The relevant data extract is shown below:

- Participant IS-05: 'I think "space" is the most useful one, such as 'go up, and 'go down'. I was very impressed by a sentence, "...come down to Thailand". I learned NORTH IS UP and SOUTH IS DOWN. I never thought about this before the training sessions. I learned a lot. Regarding metaphors, I can think of examples,

like ‘Shut up!’ and ‘I can’t put up with you.’, because both of them mean reaching the highest limit.’

Only Participant IS-01 stated that the metaphorical senses of particles were the most helpful, since he had learned the abstract sense of phrasal verbs by merely memorising them in the past. After the training sessions, he has learned how to construct meanings on phrasal verbs by mirroring meanings from spatial to metaphorical. Comparing these findings, either the spatial or metaphorical concepts being preferred, it can be argued that this study reflects those of Lakoff and Johnson (1980; 2003) who suggest that abstract senses are understood by concrete senses.

Respondents (the Categorisation Training Group) were asked to indicate which meaning sense(s) of particles in phrasal verbs they found most helpful in the training sessions. Their views surrounding three senses, i.e. spatial meanings, temporal meanings and metaphorical meanings emerged from the analysis. In their account of the events surrounding the meanings of space, 2 out of 5 participants said that spatial meaning offered them a new and easy access point linking their understanding to a complicated meaning network of phrasal verbs. Concerning the helpfulness of temporal meanings, only Participant CG-03 said ‘I think the most useful meaning for me is the meanings of time. For example, I remember “on” has a temporal meaning of “continuation”. This was quite abstract for me to understand and now I can understand it.’ As for the meaning category of metaphor, 4 out of 5 interviewees revealed that the most helpful meaning sense for them was the metaphorical, although there were some challenges for them when trying to distinguish overlapping uses between the meanings of metaphor and space.

Overall, the results in the interview data revealed that the participants of the Categorisation Training Group were seeking ways to improve their understanding of phrasal verbs via the system of three types of meaning category. One interviewee even used a ‘journey’ metaphorically to describe how he had adopted this system to construct meanings as follows:

- Participant CG-05: ‘By considering the meaning of space, time and metaphor, I can clearly direct myself at which category the meaning can fit in. These meaning categories may act as a trigger for the meaning sense and the scenario that people can use. I understand that multiple meanings of phrasal verbs can start with space, and then go to time and metaphor. It is like a “journey” you can experience. Then we can see the reasons why and understand the sentence.’

When the interviewees (the Frame Semantics Training Group) were asked ‘Do you find it helpful to understand a phrasal verb through its different senses?’ the overall response to this question was positive. The respondents were further asked to indicate the most helpful meaning sense(s). The majority commented that metaphorical senses were the most helpful for them to use; they gave as their reason that learning how to develop metaphorical thinking would be helpful for them not only to overcome the hurdle of understanding the abstract sense of metaphor, but also to think or speak like a native English speaker. Only one interviewee (FS-02) expressed the belief that the spatial sense was useful for her. She stated ‘I can easily figure out the meanings of metaphor based on the spatial meanings. For example, the phrasal verb “cheer up” means moving someone’s emotions from a lower to a higher state. It is easy to imagine the meaning now. I extend the spatial meaning of “up” to the emotional use. The spatial meaning is tangible and sensational. I can really feel it and see it.’ The above findings further support the ideas of theories of knowledge representation (Fillmore, 1975, 1977, 1982, 1985a; Fillmore & Atkins, 1992; Haiman, 1980; Langacker, 1987; Tyler and Evans, 2003) that attempt to explore the operations behind categorisation judgement, conceptualisation and meaning construction.

8.3.4 English L2 Learners’ Viewpoints about Adopting a New Approach to Learning Phrasal Verbs

In response to the question: ‘Do you think the training sessions give you new ideas of learning phrasal verbs?’, three types of response emerged from the analysis. Firstly, Participants IS-01 and IS-04 (the Image Schemas Training Group) indicated that the use of the cognitive linguistic approach to image schemas raised their metaphorical awareness of phrasal verbs which they had never previously been taught. Participant IS-01 felt that this new approach of learning could possibly improve his communication with English users, given his current status as an undergraduate studying in a UK university. Similarly, Participant IS-04 pointed out that metaphorical awareness helped him to learn English as a native speaker without requiring too much cognitive effort. He also shared his past learning experience of English in a way that was similar to his first language acquisition, i.e. Mandarin Chinese.

Secondly, Participants IS-05 and IS-08 (the Image Schemas Training Group) reported that the visual representations of particles provided them with some new experience of learning phrasal verbs. After the training sessions, they employed visual thinking to construct meanings on metaphors. A possible explanation for this might be that the combination of visual thinking and analogies helped L2 learners to pay attention to

metaphorical extensions in such a way that particles in phrasal verbs can be understood with greater ease.

Thirdly, the results suggest that some of the participant (the Image Schemas Training Group) had raised their awareness of the unique meaning construction between Mandarin Chinese and English on certain phrasal verbs since the training sessions were given. One interviewee expressed her viewpoint towards this innovative learning approach, as seen from the interview data extract shown below:

- Participant IS-06: 'I think now I can use some concepts as a native speaker, because I used to use my mother tongue language instinct. For example, I said, the tide comes "up", but English speakers say: the tide comes "in" because we have different viewpoints to describe the movements of the tides.'

Together the above results provide important insights into the positive effect that the newly adopted cognitive linguistic approach of image schemas can exert on teaching and learning particles in phrasal verbs.

This interview question required respondents (the Categorisation Training Group) to give information regarding how they felt about the new teaching and learning method of phrasal verbs via the cognitive linguistic approach of categorisation. The overall response to this interview question was positive. The majority of those who responded to this item felt encouraged about learning phrasal verbs by using a three-category system covering the meanings of literal and figurative senses. For example, Participants CG-12 and CG-13 both commented the training sessions had not only had a beneficial effect on their learning, but also provided them with an opportunity to explore the reasons why certain particles are used in phrasal verbs.

However, one interviewee pointed out there was a weakness of using this new approach; more time and cognitive effort are required to process the deeper meanings of phrasal verbs. The data extract is presented below:

- Participant CG-09: 'The training sessions help me to think deeper about the meanings of phrasal verbs. However, it still depends on the situations that I can use this new method. If it is in a test, I will not use it due to the time limit. In my free-time reading, I might use it.'

It may be that this participant considered 'learning-for-the-test' to be his main purpose when learning English, given that this condition is prevalent in Asian EFL contexts.

In response to Question 4: 'Do you think the training sessions give you new ideas of learning phrasal verbs?', most of those interviewed (the Frame Semantics Training Group) agreed that the cognitive linguistic approach of frame semantics had provided them with an innovative way of learning phrasal verbs, by understanding the particles in phrasal verbs applied to various situations or contexts. Additionally, the interviewees also suggested that by using this new approach it is possible that they could learn phrasal verbs more efficiently and effectively than rote learning, and thus further improve their English communication such as speaking or writing like a native English user. However, one of those interviewed (Participant FS-18) pointed out that she still struggled to use this new method because she felt confused about the uses of some particles in phrasal verbs and she needed more time to process the meanings of metaphor. Considering all of the above, these findings may help us to understand the majority of those interviewed thought positively about applying the cognitive linguistic approach of frame semantics to learning phrasal verbs.

8.3.5 English L2 Learners' Viewpoints about Limitations of the Cognitive Linguistic Approaches

The participating interviewees (the Image Schemas Training Group) provided two suggestions for the improvement of the training sessions with the cognitive linguistic approach of image schemas. First, four out of five participants (IS-01, IS-05, IS-06 and IS-08) acknowledged that they did not perform well in the section of group discussion. They then agreed that more engagement in the learning process could have a beneficial effect on fostering their learning autonomy. In the case of discussing learning strategies, some scholars suggest that 'In order to help learners to assume greater control over their own learning it is important to help them to become aware of and identify the strategies that they already use or could potentially use.' (Holmes & Ramos, 1991, cited in James & Garrett, 1991: 198).

Secondly, Participant IS-04 highlighted the importance of visual stimuli in teaching and learning a foreign language. He indicated that 'Maybe the researcher can use more animation or graphs. I mean more pictures and images would be helpful. I think I am an image-learning person. More images can help me to learn the concepts of particles.'

The results of this study do not explain the occurrence of these adverse events. Further research should be undertaken to investigate the focus of learning autonomy and visual stimuli in the foreign language classroom.

When the participating interviewees (the Categorisation Training Group) were asked to suggest improvements for the training sessions, respondents indicated the following three factors. First, Participant CG-03 suggested that it would be more helpful to conduct an immediate post-test containing a list of 5 to 6 short questions along with drawing a word map of phrasal verbs to help enhance L2 learners' knowledge of phrasal verbs. Second, Participant CG-05 commented that he would like the training sessions to cover more particles with sample sentences as well as more in-class tasks, because he felt that more practice would help L2 learners to develop a more comprehensive knowledge of English. Third, it seems that metaphorical thinking requires more of L2 learners' cognitive effort; Participants CG-09 and CG-13 expressed that it would be necessary for them to have further semantic elaboration of phrasal verbs, and that this should not be hindered by the time limit set in each training session. The difficulty in doing so stems from the limited amount of time available for the researcher to collect data.

This section of the interview required respondents (the Frame Semantics Training Group) to give information on the limitations of adopting the cognitive linguistic approach of frame semantics in the training sessions. Issues relating to three aspects for improvement emerged from the analysis. First, the issue concerned with the number of the participants in pair or group work. Interestingly, 'two' was observed to be the ideal number of learners for conducting collaborative work. One of the interviewees commented as follows:

- Participant FS-02: 'We have three people in our group. One of us is very talkative. I don't have a chance to engage more in the discussion or in-class tasks. In my childhood, I usually don't speak a lot. I only listened to what the teacher said. If someone really stands out, she is like a teacher in a group. Everyone will just be quiet. I just listened to what she said in the in-class activity. From my viewpoint, I think "2" would be the best number in a group. "3" is always a difficult number. If there are only two people in a group, each of them must say something. For three people in a group, there will be one person who always feels left out. Four people will be too much.'

The second issue concerned the design of in-class tasks. Some of the interviewees offered recommendations on how to provide more tasks for learners to practise in a foreign language classroom. One individual (Participant FS-06) suggested that 'I think we can also use one particular phrasal verb with many different meanings to create a story or use the opposite phrasal verbs to create a more complicated story. By this way, we can compare and contrast the meanings within one phrasal verb or of different phrasal verbs.' Another (Participant FS-11) commented 'We can put the similar concepts together to

compare and contrast their meanings. For example, “up” and “out” are quite similar. After comparing their meanings, we can have a clearer picture.’

The final issue is associated with the allocation of time for the training sessions, particularly when new concepts were first introduced. One interviewee (Participant FS-08) suggested that ‘The person who has to learn these new concepts for the first time will need more time to absorb the ideas to understand what they mean. One hour for each training session is not enough.’ Taken together, these results have important implications for EFL teachers who need to consider developing better classroom management, teaching and learning materials, and time management in the classroom.

8.3.6 English L2 Learners’ Viewpoints about the Practicability of the Cognitive Linguistic Approaches to Learning Phrasal Verbs

In answer to the question of the feasibility of adopting the cognitive linguistic approach of image schemas to learning phrasal verbs, the overall response (the Image Schemas Training Group) was very positive. Next, the participating interviewees were asked to give reasons explaining why they would employ this approach in their future learning. Data emerged from the analysis and they are compiled below:

- Using visual images to learn phrasal verbs is economical and it helps to enhance L2 learners’ memory retention of phrasal verbs.
- The image schematic approach is a new approach to learning phrasal verbs by raising awareness of the multiple meanings of phrasal verbs in various contexts.
- The image schematic approach, to some extent, helps L2 learners of English to overcome linguistic barriers in the aspects of misuse of language transfer and cultural accounts.
- The image schematic approach facilitates the development of learning autonomy.

The above list of reasons provided by the interviewees can also be seen as the strengths of using the cognitive linguistic approach of image schemas to understand phrasal verbs. For instance, Participant IS-06 in particular mentioned that she benefitted from the container schema given in the first training session. Her data extract is as follows:

- Participant IS-06: ‘After the first training session of introducing the container ideas of two particles: ‘in’ and out’, I tried to browse some information about phrasal verbs on the Internet. I also did an online test and I felt the concepts help me a lot. The test mentioned a phrasal verb ‘snow in’. I wouldn’t understand it before. Now I understand it because it means snow comes into a place. The concepts are helpful

and they make it easier for me to understand the meanings of phrasal verbs. If it is possible, I would like to see more research like this.'

Taken together, these results of interview data revealed that image schemas exert positive effects, helping Mandarin Chinese-speaking English learners construct meanings on polysemous particles within phrasal verbs by making an analogy between the concrete and abstract concepts.

In this interview question, the data revealed that some interviewees (the Categorisation Training Group) expressed a similar belief that the cognitive linguistic approach of categorisation might increase their accuracy with the meanings of phrasal verbs in a test result. Accordingly, while the participants were asked whether they would use different ways to learn phrasal verbs than before, the overall response to this question was positive. In order to explore this question item in more detail, participating interviewees were further asked to explain their reasons. In general, the majority commented that it could be useful in understanding the meaning of phrasal verbs via a three-categorised meaning network rather than by adopting rote learning. However, a recurrent theme in the interviews was a sense amongst interviewees that the tendency towards teaching-and-learning-for-the-test existing in Asian cultures made them wonder about the value of the cognitive linguistic approach of categorisation.

When the interviewees (the Frame Semantics Training Group) were asked 'After the training sessions, will you use different ways to learn phrasal verbs than before?' the overall response was very positive. A common view amongst interviewees was that they used to acquire the meanings of phrasal verbs by rote learning, first language transfer (e.g. equivalent Chinese translation), or an intuitive approach (e.g. guessing). However, the training sessions exerted some positive impact on their learning of phrasal verbs. Some interviewees argued that the sessions had raised their awareness of the multiple meanings of phrasal verbs that could be applied to various contexts, while others felt that understanding the meanings of particles helped them to grasp the meaning of phrasal verbs.

These results seem to suggest that L2 learners could benefit from the cognitive linguistic approach of frame semantics in two ways for their future learning. First, EFL learners employ the contextual clues embedded in a given sentence or text to understand phrasal verbs. Second, EFL learners understand particles first in order for them to acquire more meanings of phrasal verbs. The next section is concerned with a preliminary discussion of the general findings of interview in terms of three training groups.

8.3.7 Initial Discussion of Interview Results

In this section, the overall findings emerging from analysing the interview data are discussed based on each of the training groups, which include: the Image Schemas Training Group, the Categorisation Training Group, and the Frame Semantics Training Group.

Firstly, in terms of the Image Schemas Training Group, two themes emerged from the analysis of the interview data. They were: strengths and weaknesses of the use of images schemas in the area of teaching and learning particles in phrasal verbs. Regarding strengths, the majority of those interviewed strongly agreed that the image schematic approach is an innovative method of learning particles in phrasal verbs, combining as it does visual conceptualization with analogy. The participating interviewees reported that they would adopt a universal conceptual metaphor or an idiomatic formula to acquire a phrasal verb when encountering the similar meaning construction between English and Mandarin Chinese. Whereas, with respect to the unique meaning construction, they would employ strategies such as considering the concrete concepts, L2 construal patterns, L2 cultural accounts or positive language transfer to overcome linguistic barriers. This finding is consistent with that of Holme (2012: 9-10) who suggests that 'A further possibility is to use such procedures to clarify meanings that do not exist in the students' first language (L1) by relating them back to the physical images and activity from which they derive.' Overall, the interviewees generally agreed that the image schematic approach provided them with an opportunity to foster their L2 learning autonomy in order to gain more control of their own learning (Holmes & Ramos, 1991).

When it comes to the weaknesses of adopting the image schematic approach, some of the interviewees reported that they failed to engage more in discussing the meaning of particles in phrasal verbs with other participants during the training sessions. Inadequate participation can have a negative impact on developing learning autonomy, and those interviewed agreed about the need for more in-depth analysis of the complexity of phrasal verbs while adopting the image schematic approach. Another weakness was identified in the interviews when one participant suggested to the researcher that more visual images or animation could be used to teach and learn more particles in the future training sessions. This is an important issue for future research. To sum up, the cognitive linguistic approach of image schemas alone may not be adequate to help EFL learners in the acquisition of phrasal verbs. It is suggested that image schemas may be better added to collaborate with other cognitive linguistic approaches.

Secondly, in the case of the Categorisation Training Group, the most obvious finding to emerge from the analysis of the interview data is that the majority of those interviewed agreed that the cognitive linguistic approach of categorisation is an innovative and useful way of learning particles in phrasal verbs. There were three main reasons offered by these interviewees. First, adopting the cognitive linguistic approach of categorisation was similar to experiencing the process of first language acquisition, and one participant suggested that they might view the particles like a native English speaker. Second, highlighting the importance of the multiple meanings of phrasal verbs offered L2 learners an opportunity to explore how to use phrasal verbs in a more creative and flexible manner. The results, however, showed that those interviewed did not broadly agree about which meaning sense, i.e. space, time or metaphor, was the most helpful, as reported previously (Section 6.1, 6.2, and 6.3). Third, some interviewees expressed the belief that this new way of learning helped them to clarify the meaning of particles in phrasal verbs, such as the differences between getting 'in' a car and getting 'on' the train.

Despite the strengths of the cognitive linguistic approach of categorisation described by the interviewees above, one unanticipated finding was the weakness of using this cognitive linguistic approach of categorisation in the EFL context. Some interviewees argued that adopting the cognitive linguistic approach of categorisation might not match their learning purpose, to gain higher scores in tests, since it requires more time and effort to process deeper information. Others considered that employing this cognitive linguistic approach improved their memory retention of particles in phrasal verbs, because they felt that this new way of learning was not just a quick fix to gain better test scores. Comparison of the findings with those of the t-tests analysis reported in Section 4.4.1 shows that adopting the cognitive linguistic approach of categorisation improves Mandarin-speaking English learners' test scores in choosing the accurate particle for a given phrasal verb.

These findings raise intriguing pedagogical implications. For example, an immediate post-test can be implemented to enhance L2 learners' short memory and also to identify any matters relating to misunderstanding or non-understanding. What is more, more particles within phrasal verbs can be introduced to help EFL learners develop a more comprehensive L2 knowledge of their use. Last but not least, more class time may need to be allocated for learners to develop their metacognition, that is, the skill of in-depth analysis.

Thirdly, concerning the Frame Semantics Training Group, the results of the interviews revealed two themes: strengths and weaknesses of applying the cognitive linguistic approach of frame semantics to teaching and learning particles in phrasal verbs. In the

case of strengths, the majority of participants strongly agreed that frame semantics is an innovative approach that has been introduced to help them understand particles in phrasal verbs by stimulating semantic knowledge representation. Moreover, the in-class tasks, namely using the given phrasal verbs to write a story, were reported as useful for developing EFL learners' vocabulary in breadth and depth, and further to enhance the memory retention of learning. Furthermore, some interviewees indicated that three types of situational meaning, i.e. space, time and metaphor, inspired them to explore the operation behind meaning construction on particles within phrasal verbs, since spatial senses are so sensory and tangible that they are easy to access. Others added that metalinguistic knowledge was required during the training sessions since they needed to devote more analytical skills to the in-depth processing of information. However, some of the issues emerging from the findings were associated with the weaknesses of the cognitive linguistic approach of frame semantics. Considerations such as more kinds of in-class task that could be employed, and more time that should be allocated for each training session, need to be taken into account as first-time learners of the cognitive linguistic approach may require more stimulation, time and effort to absorb information and produce linguistic output.

8.4 Summary

Comparing the results between the pre-and post-test, the findings suggested that the cognitive linguistic approaches employed in this study exerted some positive effect on helping to improve the participants' understanding of particles in phrasal verbs. In order to verify the most helpful cognitive linguistic approach employed in this study in terms of understanding particles within phrasal verbs, further statistical tests revealed that no significant differences were found amongst the employment of the three cognitive linguistic approaches, i.e. image schemas, categorisation and frame semantics. Despite this, the results obtained from the analysis of the participants' responses to the test sections of particle and Chinese translation of the phrasal verb showed nevertheless that the participants still benefitted from the training sessions based on the three adopted cognitive linguistic approaches. In general, the findings of the interviews with 15 randomly-selected participants from the three training groups suggested that the cognitive linguistic approaches adopted in this study had some positive impact in the context of improving EFL learners' understanding of particles in phrasal verbs. I will now move to the next chapter to present an overall assessment of these three cognitive linguistic approaches and summarise the answers to the research questions.

Chapter 9 Teaching and Learning Phrasal Verbs in the Use of the Cognitive Linguistic Approach of Image Schemas, Categorisation, and Frame Semantics: Overall Evaluation, Implication, and Suggestion

Mandarin-speaking English learners have always struggled with the multiple meanings of phrasal verbs. Although some studies have been carried out via the cognitive-based approaches to teaching and learning idioms, phrasal verbs, particles or particles (Garnier & Schmitt, 2016; Kövecses & Szabó, 1996; Kurtyka, 2001; Lu & Sun, 2017; Mahpeykar & Tyler, 2015; Rudzka-Ostyn, 2003; Verspoor & Lowie, 2003), little research has focused on exploring how different strands of cognitive linguistic approach can facilitate Mandarin L2 learners' acquisition of phrasal verbs, either in a similar or dissimilar manner. Therefore this study aimed to examine three types of innovative training session, each type with a cognitive linguistic approach, i.e. image schemas, categorisation and frame semantics, in the matter of teaching and learning phrasal verbs. The designed worksheets used in the training sessions were expected to exert some impact on helping L2 learners understand phrasal verbs. The researcher will be able to present the details of how L2 learners construct meanings on phrasal verbs via three cognitive linguistic approaches, and further to discuss the facilitation of employing cognitive linguistic approaches in foreign language pedagogy.

The first research question (RQ1) set out with the aim of investigating how Mandarin Chinese-speaking L2 learners constructed meanings on English phrasal verbs before the training sessions were given. The initial objective of the study was thus to identify two aspects: (1) learning difficulty and (2) learning strategies. In other words, by examining these two facets it might be helpful for the researcher to extrapolate trends from the results to enhance our understanding of the difficulty L2 learners may encounter, and the learning approaches that might be improved for future teaching and learning applications.

The second research question (RQ2) was divided into two sub-research questions in order to assess to what extent, and in which ways, that the three cognitive linguistic approaches adopted in this study can facilitate L2 learners' understanding of phrasal verbs in the following areas:

(RQ2A) identifying the similar and unique patterns of meaning construction on English phrasal verbs between native speakers and Mandarin Chinese-speaking English learners, so as to shed some light on how to improve EFL learners' acquisition of phrasal verbs;

(RQ2B) addressing the strengths and weaknesses of each of the cognitive linguistic approaches applied in this study to serve the purpose of providing a detailed evaluation and future applications.

The answers to these research questions are discussed in the following sections. RQ1 is illustrated in Section 9.1. RQ2 is divided into two sub-questions, to discuss: on one hand, the similar and unique meaning construction on phrasal verbs between English and Mandarin Chinese speakers that are addressed respectively in Sections 9.2.1 and 9.2.2; on the other hand, the strengths and weaknesses of the employed cognitive linguistic approaches encompassing image schemas, categorisation and frame semantics as evaluated in Section 9.3.

9.1 Research Question One (RQ1): Learning Difficulty and Learning Strategies before the Training Sessions with the Cognitive Linguistic Approaches

The data from the questionnaire survey and pre-test (see Sections 4.1 and 4.2) were used to investigate Mandarin-speaking English learners' difficulty understanding phrasal verbs before receiving the training sessions based on cognitive linguistic approaches. The present findings seem to be consistent with Kurtyka's (2001) study which suggested some difficulty that L2 learners may encounter while acquiring phrasal verbs. The questionnaire survey data revealed seven types of learning difficulty that L2 learners had experienced: (1) insufficient attention given to the differences of meaning construction between the uses of L1 and L2, (2) misunderstanding the multiple meanings of phrasal verbs, (3) the misapplication of grammar, (4) the lack of contextual and collocational awareness of phrasal verbs, (5) inadequate attention being given to the semantic value of particles within phrasal verbs, (6) inefficient rote learning and (7) avoidance of using phrasal verbs.

Apart from the L2 learners' views regarding their learning difficulty with phrasal verbs, as mentioned in the questionnaire survey, it is also worth examining closely how they responded to the test paper to enhance our understanding of their learning difficulty in detail. The pre-test results revealed four types of learning difficulty with phrasal verbs that L2 learners faced before the training sessions with the cognitive linguistic approaches were given. These were: (1) failure to identify the differences in meanings that are constructed uniquely either in English or in Mandarin Chinese, (2) the lack of L2 encyclopaedic knowledge, (3) an unawareness of contextual clues, and (4) the lack of an awareness of collocational usage.

Compared with the results obtained from the questionnaire survey, the generic learning difficulty was associated with how to distinguish the unique patterns of meaning

construction on phrasal verbs between English and Mandarin Chinese as well as how to raise a collocational awareness of phrasal verbs. A possible explanation for these results may be the lack of adequate encyclopaedic knowledge of L2, as Littlemore (2009: 92) suggests: 'Clines of encyclopaedic knowledge may help us to identify potential areas of difficulty that language learners may encounter when building up their word association networks in the L2.' In summary, part of RQ1 can be answered clearly by helping us better understand the range of difficulty that L2 learners may encounter while acquiring phrasal verbs.

The results from the questionnaire survey (see Section 4.1.2) suggest some of the strategies that participants in this study had adopted for learning phrasal verbs before the cognitive linguistic approaches were demonstrated. The findings indicate that these L2 learners employed seven categories of learning strategy, consisting of (1) rote memorisation, (2) learning drills, (3) gesture or body language, (4) audio or visual learning aids, (5) contexts or sample sentences, (6) dictionaries or online resources, and (7) the application of phrasal verbs to oral or written communication. In O'Malley and Chamot's (1990) research on learning strategies, they claim that learning strategies reflect the individual thoughts and behaviours that he or she adopts to help understand, acquire or enhance the memory retention of new information. In addition, Skehan (1998) and Wenden (1991) both agree that learning strategies or styles partly exhibit learners' personal inclinations. Thus these findings corroborate the ideas of the above studies, that a range of learning strategies is used to fit L2 learners' personal preferences.

However, the results obtained from the questionnaire also suggest that some participants were not satisfied with the existing learning strategies they used. They indicated the weaknesses in some types of learning strategy. For instance, consulting online resources may carry the risk of acquiring an inaccurate meaning due to the lack of verification. Rote memorisation can give rise to low motivation and ineffective learning, scholars (Mokhtar, A. A. *et al*, 2017) regarding it as a 'shallow strategy' used frequently by beginners. In contrast, some researchers (Cohen & Aphek, 1981; Hulstijn, 1997; Lu & Sun, 2017) suggest that processing new information in depth is more effective in terms of memory retention than rote learning. Previous studies, such as O'Malley & Chamot, (1990: 44) and Cook, (1993:114-115) recommend that foreign language learners might use single or multiple cognitive strategies listed below:

- Repetition: when imitating others' speech
- Resourcing: checking dictionaries and other materials
- Translation: using L1 as a basis for understanding and/ or producing a foreign language

- Note-taking
- Deduction: conscious application of L2 rules
- Contextualisation: constructing meanings on the surrounding words or phrases
- Transfer: using L1 encyclopaedic knowledge to reflect the meanings in L2
- Inferencing: constructing the meaning of an unfamiliar word or phrase based on the information given
- Question for clarification: asking the teacher or an expert to explain, etc.

To sum up, the above results obtained in this study answer another part of RQ1, to provide important insights that EFL teachers can take into account in their classroom practice in order to explore the best learning strategies to meet individual needs and, further, to produce successful learning outcomes.

9.2 Research Question Two A (RQ2A): Meaning Construction on English Phrasal Verbs in the Use of Three Cognitive Linguistic Approaches

RQ2A in this study was to identify the similar and unique meaning construction on phrasal verbs between English speakers and Mandarin Chinese L2 learners (during and after the training sessions). The results relating to this particular question were the analysis of video-recorded training sessions and recorded linguistic output produced by the Image Schemas Training Group (Sections 5.1, 5.2, and 5.3), the Categorisation Training Group (Sections 6.1, 6.2, and 6.3), and the Frame Semantics Training Group (Sections 7.1, 7.2, and 7.3), and post-test (Section 8.1). All the findings mentioned above are discussed in general regardless of the cognitive linguistic approach employed, since the findings did not show any differences across the three training groups.

9.2.1 Similar Meaning Construction on English Phrasal Verbs between English and Mandarin Chinese Users

As regards the conceptual similarities between English and Mandarin users, four types of meaning construction that Mandarin-speaking L2 learners put on English particles in phrasal verbs were found in the study. These are: (1) language transfer (Jarvis, 1998; Jarvis, 2000; Jarvis and Odlin, 2000; Jarvis and Pavlenko, 2008), i.e. equivalent Chinese translation, (2) understanding via conceptual metaphors (Lakoff and Johnson, 1980, 2003), (3) retrieving phrasal verbs as chunks (Ellis, 2003; Mitchell, 2003); (4) understanding by adopting the opposite particle in phrasal verbs.

Firstly, in terms of language transfer, participants indicated that an equivalent Chinese translation of the particle in phrasal verb certainly occurs when they are seeking to

understand the meaning of phrasal verbs. A range of equivalent translations was elicited when the participants were asked to explain how they understand thirty target phrasal verbs which combine five main verbs (e.g. 'come', 'go', 'get', 'put', and 'take') with six target particles (e.g. 'in', 'out', 'on', 'off', 'up', and 'down'). For the English particle 'in', three equivalent Chinese translations were identified: '納', '進', and '入'. For the English particle 'out', the Chinese character '出' was found to be equivalent. For the English particle 'on', '上' and '擔' were detected. For the English particle 'off', two were observed consisting of '離' and '下'. For the English particle 'up', nine were identified comprising '上', '立', '起', '昇', '盡', '滿', '升', '光' and '夠'. For the English particle 'down', one was found, that is '下'. In general, these Chinese translations corresponding to six target English particles were found to cover three categories of meaning: space, time and metaphor. It seems that Mandarin Chinese does not have specific words or phrases to indicate concrete or abstract meanings. A Chinese character can also involve multiple meanings. For example, the Chinese character '上' can be used to interpret the English particles 'on' and 'up'. Additionally, the Chinese character '下' can respond to the English particles 'off' and 'down'. When Mandarin-speaking English learners attempt to adopt language transfer to understand these particles in phrasal verbs, it may cause them to misunderstand or be confused; furthermore, it may give rise to the incorrect use of phrasal verbs in communication. However, the majority of participants reported that language transfer provided them with a mnemonic trace to help their better memory retention than rote learning. For instance, the results shown in Table 6.8 (p.138) indicate that the Chinese character '下' can be used to reflect both basic and extended meanings of 'down' in English phrasal verbs. It can be concluded that language transfer can have positive and negative effects on L2 learners' acquisition. When EFL teachers seek to help L2 learners acquire English phrasal verbs, it is important to take these two aspects into account.

Secondly, in the case of adopting conceptual metaphors to understand phrasal verbs, a range of conceptual metaphors such as TIME IS MONEY, NORTH IS UP, SOUTH IS DOWN, HAPPY IS UP, etc. were found in the data. In addition, the results also suggest that some L2 learners are aware of the sentence contexts and collocations in the process of understanding. These findings not only confirm Lakoff and John's conceptual metaphor theory (1980; 2003) about adopting the concrete sense to understand the abstract sense, but also support Littlemore's (2009) idea that it is helpful to improve L2 learners' foreign

language acquisition by raising their awareness of encyclopaedic knowledge and contexts in use.

Thirdly, in terms of understanding phrasal verbs as chunks, an idiomatic expression ‘go down in history’ was particularly observed to be understood as an equivalent chunk in Mandarin Chinese (e.g. ‘留下歷史’ *literal meaning: leave down history*). The umbrella terminology of ‘chunk’ in second language acquisition is equated with a ‘symbolic assembly’ (Langacker, 1987), which refers to ‘strings’ of words, a ‘form-meaning pairing’, a conventional ‘linguistic unit’, or a ‘construction’ (e.g. Goldberg, 1995) in cognitive linguistics. Rudzka-Ostyn (2003:3) proposes one type of difficulty in learning phrasal verbs that ‘All these so-called “idiomatic” phrasal verbs would therefore have to be learned one by one, an arduous, time-consuming and not very rational task.’ However, Butzkamm (2001:149) suggests the benefit of adopting word-for-word translation as a teaching and learning method that ‘Anyone who has tried to learn an unfamiliar language will be easily convinced of the great advantage of mirroring structure in the native language.’ An implication of this is the possibility that it is efficient to learn phrasal verbs in a way that involves not only understanding the similar meanings between English and Mandarin Chinese, but also through memorising them as chunks in both languages.

Fourthly, with regard to employing the opposite particles in phrasal verbs to construct meanings on the other, examples were identified in relation to the two phrasal verbs ‘get down’ and ‘go down’. Some participants indicated that they use ‘stay up’ to understand the meaning of ‘get down’, representing going to sleep or taking some rest in the given sentence. Some participants also suggested that the phrasal verb ‘throw up’ can be used to grasp the meaning of ‘go down’, which describes the movements of eating. They further explained the reason for using this type of meaning construction being that they were familiar with the meanings of ‘stay up’ and ‘throw up’; therefore, they generalised the meanings of ‘get down’ and ‘go down’. It may be that these participants benefitted from understanding one particle in phrasal verbs by motivating the other. This finding has important implications for raising EFL teachers’ awareness of developing a systematic teaching method via reflecting the two contrasting yet complementary particles in phrasal verbs to assist students’ meaning construction.

9.2.2 Unique Meaning Construction on English Phrasal Verbs between English and Mandarin Chinese Users

Analysis of the unique construal patterns of meaning construction on phrasal verbs between native English users and Mandarin-speaking L2 learners sheds light on the

different perspectives of the same scene between two cultures. Some difficulty that L2 learners had with the given phrasal verbs emerged from the data analysis. The types of difficulty in understanding this type of phrasal verbs can be divided into three sub-categories: (1) lack of adequate L2 encyclopaedic knowledge and collocational awareness, (2) misunderstanding the particles in phrasal verbs, and (3) non-understanding of the metaphorical meanings of phrasal verbs.

Some sample sentences were observed in relation to the first type of difficulty. For instance, the container schema (e.g. 'The sun went in, and the breeze became cold.'), the medical setting (e.g. 'Going on the few symptoms that we could observe, we were able to diagnose the patient'.) the time-moving metaphor (e.g. 'My new calendar for work only goes up to December.')

or the perspective point hold by English users (e.g. 'He bought an investment property for \$100,000 and put down \$20,000.')

were found difficult to understand. A possible explanation for these results may be the lack of L2 knowledge representation of phrasal verbs, as well as collocation awareness.

When it comes to the second type of difficulty, four prominent examples were found. The first example was misconstruction between the meanings of 'in' and 'up'. The majority of Mandarin L2 learners of English adopted the concept of 'up' as a prototypical meaning, to grasp the meaning of 'come in' in the sample sentence: 'Big waves will *come in* for some time after the storm.' since Mandarin users consider that when big waves come into the shoreline, the sea level will rise. However, only participant CG-05 provided a unique Chinese translation '涌入' (*literal meaning: rush in*) in response to his understanding in the way that '入' is equivalent to 'in' within 'come in'. A possible explanation for this might be that this learner employed more metalinguistic knowledge than did the others. Traditionally, metalinguistic knowledge refers to a learner's cognitive skills to self-detect and correct their L2 errors using a deeper processing of information, as Renou (2000) suggests. However, more recent development has focused on a learner's analytical skills of linguistic rules or patterns. Yasuda's (2011) findings of applying conceptual metaphors to learning phrasal verbs suggest that metalinguistic knowledge can assist more efficient learning of English idioms. An implication of this is the possibility that L2 learners may develop the analytical skills first and go further to foster their learning autonomy, as learning autonomy may play a crucial role in meeting individual learners' requirements, habits, motivation and so forth.

The second example is to do with the confusion over 'on' and 'off'. Language transfer is considered as a key factor in causing this kind of misinterpretation. Owing to the complementary meanings shared between the opposite-set particles 'on' and 'off',

Mandarin L2 learners to some extent construct meanings on the English particle 'off' by understanding its contrary. Some examples were observed in conjunction with this type of misunderstanding, such as: 'The fire alarm *went off*. I just grabbed my clothes and ran out.' and 'We eventually *took off* at 11 o'clock and arrived in Venice at 1.30.' Although the meanings of 'on' and 'off' are seemingly opposed to each other, the understanding of English particle 'off' between English speakers and Mandarin-speaking L2 learners is underpinned by the shared meaning, namely, 'to start functioning'.

The third example is a fallacy that some of the participants overgeneralised certain schematic concepts, such as using the container schema to construct meanings on other particles. For example, some participants reported that 'on' in the sample sentence: 'The kids got *on* their boots and played in the snow.' had to be replaced by 'in' since they considered 'boots' as containers. However, this type of meaning construction may cause problems. If the boots are conceptualised as 'containers' kids who get in their boots must be climbing into huge boots, big enough to cover the entire human body. An implication of this is the possibility that L2 learners require more explicit and implicit instruction, so that they can have more opportunity to explore the uses of phrasal verbs in various contexts and avoid misconceptions and overgeneralisation.

The last example is the confusion resulting from the linguistic phenomenon 'false friends'. A phrase 'put the idea out of your head' in relation to 'false friends' was found when analysing the linguistic output of 'out' (see Section 7.1.1). The participant who suggested this phrase explained that he was attempting to express the meaning of 'producing the idea from someone's head'; however, according to the Merriam-Webster Dictionary (<https://www.merriam-webster.com/>), the phrase means 'to stop thinking about something'. It can therefore be assumed that it is useful to offer L2 learners the opportunity to discuss and resolve any confusion experienced in the process of learning.

With regard to the third type of difficulty, non-understanding of abstract meanings, the relevant data extracts are below:

- Conceptual metaphors (e.g. VISIBLE IS UP): 'We'll take each issue *up* separately.'
- Personification: '*This road goes on* from here through many more towns before reaching the ocean.'
- The dynamic concept of particles: 'You do not go *out* to injure opponents.' and 'They really put *out* for their team.'

The difficulty can be turned to advantage, in terms of highlighting potential problems in the process of learning. Unfortunately, the results showed that the participants were still failing

to grasp the abstract meanings of the above phrasal verbs, despite the contextual clues that were given to trigger their ideas. Taking these findings into account, metaphorical concepts must be considered thorny issues for L2 learners to tackle. More studies are needed to explore the most successful ways to help such learners better understand metaphorical extensions.

Comparing the two results, that is, the difficulty that participants encountered in understanding phrasal verbs before and during the training sessions, it can be seen that similar factors such as the lack of L2 encyclopaedic knowledge, with unawareness of contextual information and collocational usage contribute to L2 learners' misunderstanding and non-understanding of phrasal verbs. Moreover, the findings discussed above provide insights into L2 learners' difficulty in acquisition of phrasal verbs.

Turning now to the results of the post-test, to examine whether the intervention of the training sessions using cognitive linguistic approaches alter Mandarin Chinese-speaking English learners' meaning construction on phrasal verbs, and improve their understanding. After analysing the post-test, the results were categorised into two types of test outcome: unimproved and improved performance with meaning construction on phrasal verbs. These data must be interpreted with caution, given the limited question items chosen for this study. In general, 12 out of 30 question items were identified under the category of unimproved performance. These covered six target particles in phrasal verbs. There are several possible explanations for this result: (1) confusion over particles in use, (2) lack of awareness of contextual and collocational information, (3) lack of adequate L2 vocabulary, (4) failure to grasp the abstract meaning of phrasal verb, and (5) the negative effect of language transfer. One unanticipated finding was that in response to the question item 'put off', some participants provided the correct particle in the given phrasal verb; however, they failed to offer an accurate Chinese translation. Another surprising finding was the tendency for some errors with particles to be repeatedly made by the participants, possibly because these L2 learners' prior knowledge in their L1 mental lexicon affected their choice of a particular particle within a sentence context. The results of this study may suggest that further work is required to establish a longitudinal research, as this study sought only to determine the short-term effects.

18 out of 30 question items were found as the improved test outcomes. The improved question items cover six target particles in phrasal verbs. There are several reasons that might explain the results. Firstly, it seems possible that universal concepts helped the participants better understand the given phrasal verbs, such as using the conceptual metaphor: UNDERSTANDING IS SEEING. Secondly, it is possible that the similar construal patterns shared between English and Mandarin users via language transfer

helped L2 learners ease the stress of seizing the correct meaning. For instance, for the phrase ‘take on the job’ we can find an equivalent translation in Mandarin Chinese, since the use of ‘on’ is the same as the Chinese usage of ‘擔’ (meaning: *shoulder the responsibility*). Thirdly, L2 learners can benefit from the familiarity of phrasal verbs, and the training sessions based on the cognitive linguistic approaches. The results showed that some highly frequently used phrasal verbs are convenient for participants to infer the meanings of other phrasal verbs that they are not familiar with.

These results emerged from the post-test match those found in the pre-test in terms of the learning difficulty with phrasal verbs. It is encouraging that the results found in the post-test not only offered us more insights into the difficulty L2 learners encounter (RQ1) but also shed light on the facilitating aspect (RQ2) that EFL teachers can take into consideration to help L2 learners improve their meaning construction.

This combination of findings discussed in Sections 9.2.1 and 9.2.2 has important implications for ways to improve L2 learners’ understanding of phrasal verbs in classroom practice. In the case of similar patterns of meaning construction, the uses of language transfer, i.e. Chinese equivalencies, universal conceptual metaphors, idiomatic-chunk memorisation, and a generalisation of familiar items of phrasal verbs are suggested. In contrast, in terms of the unique patterns of meaning construction, several methods of explicit instruction can be employed, that is, highlighting L2 encyclopaedic knowledge and collocational usage, introducing a semantic network of particles in phrasal verbs, and explaining how the metaphorical senses are motivated by the spatial senses. This reflects recent studies which have suggested teaching recommendations to help L2 learners to overcome the barriers of cross-linguistic similarities and differences. Svalberg (2007) provides some suggestions for ways in which to develop L2 learners’ metalinguistic skills in acquiring L2 encyclopaedic knowledge, such as distinguishing L1 and L2 encyclopaedic knowledge and building up their linguistic knowledge of cross-cultural awareness, semantic networks and collocations. Laufer and Girsai’s (2008) study also reveals that L2 learning can be significantly improved by means of using contrastive analysis and translation in the EFL context while explicit discussions of cultural-specific word associations are given.

The next section describes synthesis and evaluation of the three cognitive linguistic approaches adopted for teaching and learning particles in phrasal verbs.

9.3 Research Question Two B (RQ2B): Overall Evaluation of Image Schemas, Categorisation, and Frame Semantics

RQ2B in this study sought to assess the effects that each of the three cognitive linguistic approaches, i.e. image schemas, categorisation and frame semantics, could exert on Mandarin-speaking English learners' understanding of phrasal verbs and further, to provide an overall evaluation of the three cognitive linguistic approaches. The research tools used to answer RQ2B were the pre-test, the post-test, the video-recorded training sessions, the recorded linguistic output and the interviews. In this section, I begin by discussing the quantitative outcomes before addressing the qualitative accounts.

When it comes to the quantitative results, t-tests were used to analyse the relationship between the pre-test and the post-test by applying the three cognitive linguistic approaches (image schemas, categorisation, and frame semantics) to teaching and learning particles in phrasal verbs. Concerning the cognitive linguistic approach of image schemas, a significant correlation was found in three sections (see Table 8.2, p.184). They were: the test section of particle, $t(14) = -3.70, p < .05$, the test section of Chinese translation of the phrasal verb, $t(14) = -3.15, p < .05$, and both correct answers in the test sections of particle with Chinese translation of the phrasal verb, $t(14) = -3.27, p < .05$. According to Cohen's (1998: 284-287) guidelines for interpreting the value of eta squared (.33 in the test section of particle, .41 in the test section of Chinese translation of the phrasal verb, and .43 both correct answers in both the test sections of particle and Chinese translation of the phrasal verb), there was a large effect of the magnitude of the training sessions on the above test sections in terms of the mean scores. In the case of the cognitive linguistic approach of categorisation, the results of paired-samples t-tests between the pre-test and the post-test (see Table 8.3 p.185) revealed a significant difference in three types of test score, i.e. the test section of particle, $t(14) = -2.98$, the test section of Chinese translation of the phrasal verb, $t(14) = -2.90$, and both correct answers in the test sections of particle with Chinese translation of the phrasal verb, $t(14) = -3.37$. The eta squared statistics also indicated that there was a large effect in the test sections: the test section of particle (.39), the test section of Chinese translation of the phrasal verb (.38), and both correct answers in the test sections of particle with Chinese translation of the phrasal verb (.45). The most striking result to emerge from the data of the paired-samples t-tests analysis of the Frame Semantics Training Group (see Table 8.4, p. 186) which showed that at the $p < .05$ level, the main effect of the test section of particle, $t(17) = -2.75$, was statistically significant, and the main effect of both correct answers in the test sections of particle with Chinese translation of the phrasal verb, $t(17) = -2.37$, was also significant but not in the test section of Chinese translation of the phrasal verb. The values of eta squared statistics revealed a large effect of the test section of particle (.31)

and both correct answers in the test sections of particle with Chinese translation of the phrasal verb (.29).

In order to compare the scores after the employment of the three cognitive linguistic approaches (image schemas, categorisation, and frame semantics), a one-way ANOVA analysis (see Table 8.5, p.187) was used. It can be seen from the data in Table 8.5 that none of these differences were statistically significant. First, in the post-test at the $p < .05$ level for three cognitive linguistic approaches, $F(2, 45) = .38$, $p = .68$, there was no increase of scores associated with the accuracy of both of the test sections, i.e. providing both correct answers to the particle as well as the Chinese translation of the phrasal verb. Second, at the $p < .05$ level for the three cognitive linguistic approaches, $F(2, 45) = .71$, $p = .50$ or smaller, no significant differences were found in terms of distinguishing the multiple meanings amongst the meaning senses of space, time and metaphor of particles in phrasal verbs. In other words, participants did not have improvements; however, the improvements across conditions (the accuracy of using a particle with Chinese translation of the phrasal verb, and the process of differentiating three meaning senses) were not significantly different from one another.

The above results in relation to t-tests and ANOVA analysis can be interpreted as follows:

- Compared with their performance before receiving any training sessions with the cognitive linguistic approach of image schemas, participants in the Image Schemas Training Group performed better in terms of the accuracy of particles, the Chinese translation of phrasal verbs, and particles with Chinese translation of the phrasal verbs.
- Participants in the Categorisation Training Group performed better concerning the accuracy of particles, the Chinese translation of the phrasal verbs, and particles with Chinese translation of the phrasal verbs, after their training sessions with the cognitive linguistic approach of categorisation.
- Participants in the Frame Semantic Training Group performed better in two main sections: the accuracy of particles and particles with Chinese translation of the phrasal verbs, after the training sessions with the cognitive linguistic approach of frame semantics were given. Contrary to expectations, this study did not find any significant difference between the pre-test and the post-test scores of correct answers provided in the section testing Chinese translation of the phrasal verbs. The reason for this is not clear from the data but possible interference, such as overthinking of the answers in the equivalent Chinese, cannot be ruled out.
- None of the three training groups was reported to have significantly more effect on the accuracy of prepositions with Chinese translation of the phrasal verbs and the

differentiation among three meaning senses in the post-test than the other two training groups.

- These data must be interpreted with caution because of a small sample size.

Additionally, a detailed breakdown of the scores in the pre- and post-test gained by participants from three training groups respectively in Table 8.6 (p.188), Table 8.7 (p. 189) and Table 8.8 (p. 190) and collectively in Table 8.9 (p.191) showed that the application of the cognitive linguistic approaches was useful as they were able to facilitate EFL learners' understanding of particles in phrasal verbs to some extent.

Overall, the quantitative outcomes suggest that all three cognitive linguistic approaches employed in this study are beneficial to the improvement of Mandarin-speaking English learners' understanding of particles in phrasal verbs. However, it is somewhat surprising that no best cognitive linguistic approach was noted in assisting EFL learners' acquisition of such particles. One could argue that it is difficult to comment on which cognitive linguistic approach is more beneficial than others by simply drawing conclusions from the statistical results. With the aim of scrutinising in more detail how cognitive linguistic approaches can assist L2 learners' conceptualisation of the complex semantic networks of phrasal verbs, and their possible effects on teaching and learning particles in phrasal verbs, it is important to discuss the qualitative data consisting of video-recorded training sessions, recorded linguistic output, and interviews. The key aspects of qualitative results can be listed as follows: the cognitive linguistic approach of image schemas, the cognitive linguistic approach of categorisation, and the cognitive linguistic approach of frame semantics.

The qualitative data shed light on the benefits which the L2 learners gained from the training sessions with the cognitive linguistic approach of image schemas, and these benefits came in several forms seen in the dataset. First, using visual representations offers L2 learners an economical means to understand particles in phrasal verbs, and further enhances more of their memory retention than rote memorisation. Second, the cognitive linguistic approach of image schemas helps learners develop visual thinking and infer meanings from the spatial senses to metaphorical extensions. Third, the use of image schemas raises L2 learners' awareness of universal concepts shared between English and Mandarin users via visual conceptualisation. It seems that Mandarin Chinese-speaking L2 learners can more easily grasp the abstract senses of phrasal verbs via cross-linguistic similarities (e.g. the conceptual metaphor: HAPPY IS UP). For this reason, image schemas is beneficial to L2 learners' communication with native English speakers. Fourth, some participants in the Image Schemas Training Group indicated that this cognitive linguistic approach helped them develop metalinguistic knowledge in the

process of learning. In other words, they learned how to adopt the strategies to manage their own learning task. They were enabled gradually to become independent learners and foster their own learning autonomy.

By contrast, the practical constraints of the cognitive linguistic approach of image schemas were also found in the dataset mentioned above. Given the fact that only a series of abstract visual images of particles was offered in the training sessions and more time was required to present clear and explicit instructions of the theory of image schemas to such first-time learners. Another reason for providing explicit instruction is to clarify L2 learners' misunderstanding or non-understanding of the multiple meanings of phrasal verbs. If the instructor fails to do so, learners will have less opportunity to explore more of the depth and breadth of vocabulary knowledge. However, due to the limited time available for data collection in this study, the researcher could only do her best to help participants to explore the multiple meanings of phrasal verbs as far as was possible. Lastly, another weakness of image schemas found in this study was that the method of visual stimuli might only meet some individuals' needs, depending on their personal learning habits or styles.

Regarding the cognitive linguistic approach of categorisation, L2 learners benefitted from the training sessions in terms of three key aspects. Firstly, participants in the Categorisation Training Group agreed that this cognitive linguistic approach offered them a more economical and accurate way to grasp the multiple meanings of phrasal verbs. Compared with spending a great deal of time on rote memorisation, L2 learners used spatial meanings as a foundation to understand the metaphors in an economical manner. In terms of accuracy, the participants indicated that the theory of categorisation helped them to learn phrasal verbs in the same way as native English speakers. That is, they were able to acquire phrasal verbs just like those in the process of first language acquisition, compared with the intuitive approach (e.g. guessing) that they used to employ. Secondly, some participants reported that the cognitive linguistic approach of categorisation offered them an opportunity to analyse in more depth the use of phrasal verbs in response to their personal learning habits or attitudes; for example, some L2 learners tend to process the deeper meanings on their own instead of discussing with others. In-depth processing of information is a reference to what scholars in the field of language acquisition consider as 'metalinguistic knowledge' that can further contribute to learning autonomy. The third benefit is to help L2 learners' develop L2 vocabulary in breadth and depth. This study suggests that the cognitive linguistic approach of categorisation has two functions. Firstly, it raises L2 learners' awareness of the unique meaning construction on phrasal verbs existing between two cultures to avoid falling into the pitfalls of false equivalencies. A range of relevant examples can be found in the

analysis of the phrasal verb 'put down', in Section 6.3. Secondly, it is beneficial to provide mnemonic traces and enhance memory retention of phrasal verbs by highlighting the importance of the similar meaning construction on phrasal verbs between English and Mandarin Chinese combined with the assistance of L1 equivalencies. It can be seen from the data in Table 6.6 (p.133) and Table 6.8 (p.138) that the equivalent Chinese characters, such as '上 (up)' and '下 (down)', show the positive effect of first language transfer on the process of learning.

By contrast the results also revealed the obverse side of one coin, namely the weaknesses of adopting the cognitive linguistic approach of categorisation. The findings suggest that employment of the cognitive linguistic approach of categorisation requires more time and cognitive effort if L2 learners are to conceptualise meanings of phrasal verbs, and some participants in the Categorisation Training Group reported that they might not adopt this approach if they were under the time pressure of learning-for-the-test. This finding was also reported by Lu & Sun (2017) who suggested that rote learning, i.e. the traditional method, plays a better role in helping L2 learners' memory retention of phrasal verbs in the immediate post-test period than delayed post-test. In other words, rote memorisation is superior for short-term memory. Another weakness involves the limited amount of time offered to the participants in this study to digest the complex and abstract senses of phrasal verbs within the restricted contextual clues. It can be argued that explicit teaching and metalinguistic knowledge are required if teachers and students wish to achieve successful learning in the long term, via the cognitive linguistic approach of categorisation.

When it comes to the cognitive linguistic approach of frame semantics, the results give an account of the benefits that L2 learners gained from the training sessions. Some of the participants in the Frame Semantics Training Group reported that they could mentally rehearse their daily life experience in order to imagine or grasp the meanings of phrasal verbs. As regards the similar patterns of meaning construction on phrasal verbs, equivalent Chinese translation can be adopted to link their L1 mental lexicon to L2 knowledge representations; whereas concerning the unique patterns, to some extent, the findings show that the connection between L1 and L2 encyclopaedic knowledge is still crucial, regardless of the different lexical choices made by English and Mandarin Chinese users. Examples can be seen in the analysis of 'on' and 'off' in phrasal verbs in Section 7.2. Concisely, L2 learners can benefit from the cognitive linguistic approach of frame semantics in a way that uses L2 knowledge representations to explore the mechanism behind meaning construction despite the similar and unique patterns of language cognition that exist between two languages. Another benefit emerging from the data was

associated with the in-class task when participants were asked to create a story using a set of given phrasal verbs centring around one target particle (e.g. come 'in', go 'in', get 'in', put 'in', and take 'in'). The results show that this type of task not only helps L2 learners to explore L2 encyclopaedic knowledge combined with semantic frames, but also encourages them to gain a better command of the breadth and depth of L2 vocabulary. This finding is in agreement with Littlemore's (2009) and Holme's (2009) ideas of promoting the uses of semantic frames in the context of foreign language teaching and learning, as this cognitive linguistic approach is beneficial to exploring L2 flexibility and creativity.

The findings in this study also suggest some weaknesses in the use of the cognitive linguistic approach of frame semantics. One participant in the Frame Semantic training Group pointed out that frame semantics helped improve her understanding of particles in phrasal verbs despite the thorny issues of distinguishing the usage between particles, and grasping the metaphorical meanings that remain. It seems that first-time learners who adopt this innovative approach may require more time to process the in-depth information. Another weakness identified in the findings of this study mirrors Fillmore's (1982) idea of 'envisionment of the world' suggesting that the same concept may not trigger the same meaning between L1 and L2 speakers because of culturally embedded information. The relevant results can be found in the errors (e.g. 'false friends') made by participants in the in-class tasks (see Sections 7.1, 7.2, and 7.3).

Turning now to the overall evaluation of the three cognitive linguistic approaches in this study, two themes emerged from the qualitative analysis when comparing the results of the pre-test and the post-test amongst the three cognitive linguistic approaches. They were the difficulty and the improvements that L2 learners experienced after the training sessions using cognitive linguistic approaches. The study found that Mandarin Chinese EFL learners still experienced three main types of difficulty in understanding particles in phrasal verbs after the cognitive-linguistic-approach training sessions were given. Firstly, EFL learners' misuse of first language transfer gave rise to the misapplication of particles in phrasal verbs. The problems involved false L2 equivalencies, and confusion over particles in various contexts. A possible explanation for this might be that it is difficult to switch L2 learners' L1 mental lexicon to L2 encyclopaedic knowledge immediately, due to the culturally embedded information deeply entrenched in their L1 encyclopaedic knowledge. The second type of difficulty is to do with the issue of non-understanding, or misunderstanding, of temporal and metaphorical meanings that recurred throughout the dataset. The third type concerns insufficient knowledge of collocations and lack of awareness of contextual clues. Possible explanations for the second and third type of difficulty might be related to the long-existing issue of understanding abstract concepts in

the EFL, and the lack of L2 vocabulary. However, the results were encouraging in that L2 learners' understanding of spatial concepts was improved. This finding confirms Lakoff and Johnson's (1980, 2003) Conceptual Metaphor Theory that suggest the interpretation of abstract ideas is derived from the understanding of concrete concepts; for this reason, the spatial concept can also be regarded as the concrete idea used as an access to reflect the metaphorical sense. Moreover, this study has an important implication for developing an explicit and implicit teaching and learning approach to phrasal verbs, so that L2 learners can have more opportunity to clarify their misunderstanding and non-understanding over meanings by exposing them to the uses of phrasal verbs.

The qualitative analysis of interview data obtained from the three training groups suggested the strengths of the application of these cognitive linguistic approaches to Mandarin EFL learners' acquisition of phrasal verbs. Two main positive effects were identified, and these were: (1) improving L2 learners' understanding of polysemous phrasal verbs, and (2) introducing innovative and effective learning approaches. When it comes to the first positive effect, the results suggest that some L2 learners were able to utilise the spatial concept as a starting point to grasp the concepts of time or metaphor via conceptualising the complex semantic networks of phrasal verbs in a more systematic manner. Moreover, the results suggest that L2 learners' metaphor awareness and analytical skills were enhanced, helping improve their understanding of phrasal verbs. Regarding the second positive effect, the majority of interviewees reported that the innovative learning approaches provided them with a method of learning phrasal verbs similar to that which native English speakers employ, compared with their prior learning strategies such as rote memorisation and the intuitive approach, i.e. guessing. Despite more time being required to process in-depth information, they still felt that they had benefitted from the cognitive linguistic approaches in terms of enhancing their memory retention and improved quality of communication in English.

In summary, RQ2B can be answered positively. Whilst this study did not confirm the best facilitating cognitive linguistic approach amongst the three, each of the cognitive linguistic approaches were able to play a distinctive and facilitating role in helping Mandarin Chinese EFL learners understand particles in phrasal verbs. I can conclude that the findings in this study are rather encouraging, and that cognitive linguistic approaches can be promoted and applied to the EFL context.

To complete this section, I would like to emphasize the importance of the overall evaluation provided. The data collection materials consisting of a questionnaire, a pre-test, a set of nine worksheets, a post-test, and the interview were used to answer RQ1, RQ2A and RQ2B. This current study improves our understanding of the specific and general role

that each of the cognitive linguistic approaches employed can play in the context of learning phrasal verbs with in-depth analysis. In fact, previous published studies tended to focus on comparing the traditional approach with cognitive-based approaches (Lu & Sun, 2017; Yasuda, 2010), and there is little research on utilising a holistic view to evaluate the various strands of cognitive linguistic theories. It is positive that the results of this study match those claimed in earlier studies, that is, Conceptual Metaphor Theory (Lakoff & Johnson, 1980, 2003), image schemas (Johnson, 1987; Lakoff, 1987, 1990), categorisation (Lakoff, 1987), and frame semantics (Fillmore, 1976, 1982, 1985a, 1985 b; Fillmore & Atkins 1992) that inspire us in theoretical applications. Thus, the combination of findings has important implications for EFL pedagogical design and the development of teaching and learning materials. I suggest three aspects as follows: (1) raising awareness of similar and unique patterns of meaning construction on phrasal verbs between English and Mandarin; (2) promoting cognitive linguistic approaches in the foreign language classroom; (3) adopting both explicit and implicit teaching approaches to help EFL learners understand complex phrasal verbs.

The most important findings in this study were identifying the similar and unique meaning construction on particles in phrasal verbs existing between native English speakers and Mandarin-speaking English learners. Both offer their own advantages helping foreign language acquisition. In terms of similar patterns, L2 learners may use English-Chinese equivalencies as mnemonic traces to memorise idiomatic chunks and to improve their learning retention. In the case of unique patterns, EFL teachers may adopt contrastive analysis to raise learners' awareness of the differences between two languages in order to avoid misunderstanding or non-understanding of phrasal verbs. However, an issue arises in relation to how to help L2 learners to reduce the risk of their using negative language transfer. It is claimed that cognitive linguistic approaches can have positive effects on L2 learners developing their knowledge of imagination, analogy or inference, so-called metalinguistic knowledge. To improve L2 learners' metalinguistic knowledge can also enhance their analytical skills, because it requires deeper processing of given information. Moreover, if L2 learners become more confident about the ways to construct meaning on phrasal verbs, it is possible to foster their greater learning autonomy. Other conceptual knowledge relating to particles in phrasal verbs can also be taught. For example, the results in Chapter 7 suggest that a number of participants struggled with the collocations of phrasal verbs. This common difficulty is probably a consequence of their lacking sufficient L2 encyclopaedic knowledge and word associations. Finally, this present study suggests that it is necessary to provide L2 learners with both explicit and implicit teaching methods, as these learners can benefit from developing their L2 vocabulary in breadth and depth. This corroborates Hulstijn (2001) and Nation (2001), who suggest complementing implicit learning with explicit teaching.

9.4 Limitations of the Study

There are limitations to the current research, and they have influenced the results of this study. Firstly, according to Lindstromberg (2010), there are more than ninety particles used in English but due to the size of the thesis this study only focused on six target particles: 'in', 'out', 'on', 'off', 'up', and 'down' within thirty phrasal verbs. However, these six chosen particles are commonly used in daily English communication, as suggested by Schmitt & McCarthy (1997) even while the existing literature remains less than abundant, particularly for Mandarin Chinese EFL contexts. Fortunately, some similar and unique patterns of meaning construction on particles in phrasal verbs were found in this study.

The second limitation of this study is that it was a small-scale investigation; that is, the findings were based on a small sample and a larger sample would be necessary in future studies. This limitation means that the results need to be interpreted cautiously. In order to compensate for this weakness, the researcher used a range of data sources with the aim of obtaining a comprehensive insight into the details of the study.

Thirdly, the reliability and validity of the current study were limited by the restricted time available for conducting each training session. All the participants recruited for this study were learners encountering cognitive linguistic approaches for the first time. They may have required more time to process the given information, particularly in relation to the metaphorical concepts. The restricted time allocated to the training sessions also affected the results of the in-class tasks. If more time was available, participants may respond more in their linguistic output by receiving greater stimulation from the sample sentences and in-class discussion.

Another limitation to this investigation is that the questionnaire survey, interview, and tests placed some constraints on the reliability and validity of the research. First, the method of sampling may have affected the results of the questionnaire survey and interview, because the data obtained from these two sources may not represent the general information on one particular question. Furthermore, the researcher only conducted a delayed post-test and this involved many different factors; this may have affected the post-test results. It can be argued that an immediate post-test should be implemented to compare with a delayed post-test, in order to obtain more details of how to improve and promote the uses of cognitive linguistic approaches in EFL.

9.5 Future Directions

This research has posed many questions in need of further investigation. Given the limitations mentioned in the above section, more research might well be conducted in the future. In the researcher's opinion more particles, e.g. 'over', 'away', and 'through' within phrasal verbs could be examined in the EFL context via the perspective of cognitive linguistics. This may shed more light on how cognitive linguistic approaches can exert an impact on Mandarin-speaking L2 learners' acquisition of particles in relation to phrasal verbs. What is more, it would be interesting to assess the effects of cognitive linguistic approaches on a larger-scale empirical research. More information about both theoretical implications and practical applications would help to establish a greater degree of accuracy in this matter.

A greater focus on the design of worksheets could produce interesting findings concerning the impact of cognitive linguistic approaches in the foreign language classroom; when interviewed, some participants suggested that more examples and in-class tasks would be necessary for future studies and practice. For example, modifications might be made to offer more sample sentences and in-class tasks so that L2 learners could explore in greater depth their ideas and thinking about the usage of phrasal verbs. In addition, more time could be allocated to each training session; participants can benefit from having more opportunity to enhance their in-depth understanding of particles in phrasal verbs.

Finally, classroom management is an important aspect for EFL teachers to take into account when implementing their training sessions. For instance, the results from the interviews in this study suggest that 'two' is the ideal number to conduct a paired-work class activity because each of the participants can have more opportunity to benefit from the learning process.

9.6 Contributions

Although research on English phrasal verbs has been a popular topic in the cognitive linguistic disciplines during the past decade, this PhD study has a number of contributions to make to EFL and applied linguistics. The theoretical framework of this study rests upon three strands of Cognitive Linguistics, i.e. image schemas, categorisation and frame semantics, each of which provides distinct insights into the cognitive mechanisms behind our understanding of language. This study suggests that none of the cognitive linguistic approaches is better than the others; and one cognitive linguistic approach can collaborate with another, offering better teaching methods in such a way that L2 learners

can benefit from embracing their strengths. For example, one of the weaknesses of image schemas is that image representation fails to provide a full picture, unable to express in detail the multiple senses of a phrasal verb; the theory of categorisation can compensate for this weakness, by showing a systematic network of radial categories covering the prototypical and peripheral meanings. Moreover, the theory of frame semantics can exhibit the relationship between L1 mental lexicon and L2 encyclopaedic knowledge through understanding the given contexts and word associations. For this reason, I would suggest a synthesis of the three cognitive approaches could with advantage be employed in the EFL context. The sequence I would suggest for adopting cognitive linguistic approaches to be implemented in the EFL classroom is as follows:

- Providing L2 learners with the cognitive linguistic approach of image schemas is the first choice, since it offers simple and straightforward visual stimuli to students.
- Followed by the cognitive linguistic approach of categorisation that leads students to explore the prototypical meanings and then move on to their peripheral extensions.
- Finally, the cognitive linguistic approach of frame semantics can be applied because it can help students enhance in-depth understanding of phrasal verbs and longer retention by means of exploring semantic frames and stories behind vocabulary.

It is argued that the second main contribution that this study can make to cognitive linguistics and EFL is to highlight the similar and unique patterns of how native speakers and L2 learners construct meanings on particles in phrasal verbs. The matter of language variation between English and Mandarin is rarely discussed explicitly in the foreign language classroom. The complexity of language systems is widely agreed; accordingly, it is encouraging that an explicit teaching approach can be adopted. Based on Rudzka-Ostyn's (2003) textbook, *Word Power: Phrasal Verbs and Compounds: A Cognitive Approach*, this study has developed a systematic way of teaching and learning particles in phrasal verbs by presenting three sets of opposite meanings of particles ('in'-'out', 'on'-'off', and 'up'-'down') in phrasal verbs and categorising them into three layers of concepts, from spatial to temporal and metaphorical senses. This systematic method has some advantages over rote learning. First, it offers students an explicit way of learning particles in phrasal verbs, and which is different from their prior experience. However, EFL teachers are required to receive training in how to use these cognitive linguistic approaches before the actual teaching. Second, explicit teaching is beneficial for both teachers and students as the potential difficulty in the process of teaching and learning can be identified. For teachers, they are better able to identify the potential difficulty that students may encounter, and thus improve their teaching to help students' acquisition. For

learners, they are able to overcome their confusion by detecting new patterns in L2 input. This contribution is also consistent with the ideas of Grigorenko *et al.* (2000) that highlight the importance of new construals and meaning construction in the process of foreign language teaching and learning.

The third contribution of this study is to do with pedagogical design. A bottom-up teaching approach can help L2 learners acquire phrasal verbs, since the majority of phrasal verbs are considered as idiomatic expressions. EFL teachers can assist students to understand particles in phrasal verbs in similar ways to those employed in the process of first language acquisition. For instance, in Taiwan students are given EFL courses in primary education, starting from the age of six. This innovative EFL teaching approach can be used at this stage with the beneficial effect of avoiding negative L1 transfer, as discussed at length in the earlier chapters (Chapters 4, 5, 6, and 7) of this thesis.

The fourth contribution of this study is in relation to the curriculum of English for Academic Purposes (EAP). English-speaking countries, such as the USA or the UK, have potential to attract international students from around the world for their higher education. Metaphorical uses are ubiquitous in English communication, and international students usually find it difficult to grasp abstract descriptions used by teachers in lectures (Littlemore *et al.*, 2011). This study may help develop international students to interpret the many metaphors used in EAP courses, which will improve their understanding and subject knowledge.

The fifth contribution of this study is associated with the research into machine translation. Recent studies in machine translation have mainly been based on statistical calculations (Mikolov & Sutskever, 2013). There remain many outstanding questions concerning how machine translation can be made to reflect the features of human language such as indirect speech, metaphors or metonymies. This study provides additional knowledge with respect to the similar and unique meaning construction on particles in phrasal verbs between English and Mandarin Chinese, and this may serve as a base for future studies, suggesting a role for Cognitive Linguistics in the research concerning machine translation. Clearly, there is still much to be explored.

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Appendices

Appendix A. Information sheet

Participant Information Sheet

Research Title: Particles in Phrasal Verbs—A Cognitive Linguistic Approach to Meaning Construction

Researcher and Affiliation: Hui-Ching Lin, PhD candidate in Department of English and Creative Writing, Northumbria University, UK

Contact Details: +44 (0) 7400 358 121/ hui-ching.lin@northumbria.ac.uk

The purpose of this research

This research aims to investigate whether learning approaches developed from cognitive linguistic theories can help improve Chinese-speaking English learners' understanding of English particles within phrasal verbs.

What will happen as part of the research?

During this research, you will be asked to complete a questionnaire, a pre-test, three training sessions for learning particles and phrasal verbs. The training sessions will be audio-recorded or video-recorded. After completing the training sessions, you will be asked to complete a post-test. Moreover, some of you will be randomly selected for an interview for your opinions about the training sessions.

Why have I been chosen?

You have been chosen for this study because you are native Chinese speakers, who have academic background in Higher Education (including foundation programme) in an English-speaking country.

What will I have to do if I agree to take part?

You will be asked to sign a consent form if you agree to take part in this research. Your participation is voluntary. You can change your mind at any time you want during the study. You are free to withdraw without giving any reason.

Will my taking part in this research be kept confidential?

All your personal information will be treated as confidential. Each individual participants' data will be classified with a reference number for anonymity in the process of research. Any data transcribed from the audio or video-recorded personal information will be fully anonymised as well. All the data collected and used during this study will be stored in accordance with Northumbria University guidelines. Any irrelevant data collected during the research will be destroyed upon the completion of research publication. The findings and results of this PhD thesis is likely to be presented or published in conference papers, journal articles or textbooks.

Who can I contact for further information about this research contact?

Sarah Hui-Ching Lin

E-mail: hui-ching.lin@northumbria.ac.uk

Who should I contact if I wish to make a complaint or report an incident concerning this research?

Email: ad.pgr@northumbria.ac.uk

Tel: 0191 227 4936

You will be given a copy of this Information Sheet and a copy of the Participant Consent Form.

Appendix B. Consent form
Participant Consent Form

Name of project

Particles in Phrasal Verbs—A Cognitive Linguistic Approach to Meaning Construction

Organisation(s) initiating research

Northumbria University

Researchers' names

Hui-Ching Lin

Research Organisation

Northumbria University, UK

Participant's name – write your name in here

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- I confirm that I have been supplied with and have read and understood an Information Sheet for the research project and have had time to decide whether or not I want to participate.
- I understand that my taking part is voluntary and that I am free to withdraw at any time, without giving a reason.
- I agree with Northumbria University recording and processing this information about me.
- I understand that this information will only be used for the purposes set out in the information sheet.
- I have been told that any data generated by the research will be securely managed and disposed of in accordance with Northumbria University's guidelines.
- I am aware that all tapes and documents will remain confidential with only the research team having access to them.
- My consent is conditional upon the University complying with its duties and obligations under the Data Protection Act.

Please circle your choice:

I would like a copy of the report when it's published: Yes/ No/ I'll decide later.

Signature of Participant (even if below 18 years old)

Date

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**Signature of Parent/Guardian/Representative
(if participant is under 18 years old)**

Date

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I can confirm that I have explained the nature of the research to the above named participant and have given adequate time to answer any questions concerning it.

Signature of Researcher

Date

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Appendix C. Questionnaire

An English phrasal verb is a verb together with an adverb or a particle, for example 'turn up' is a phrasal verb that has a verb 'turn', and an adverb 'up'. A phrasal verb often has multiple meanings. The example of "turn up" can mean someone arrives at a place, or someone increases the volume of sound, heat or power.

The purpose of this questionnaire and pre-test is to give the researcher an overview of how Mandarin Chinese speakers learn and use English particles in phrasal verbs. This will help the researcher to explore relevant approaches that may facilitate the learners' learning experience.

The questionnaire and pre-test should take about 45 minutes to complete. You may write your answers either in English or Chinese in the questionnaire. Thank you very much for your time.

Personal information:

Sex ☐ Male ☐ Female Age _____
Nationality _____ Education Level _____
Number of years learning English _____ years
Number of years learning English in an English-speaking country (such as UK, USA, Australia...etc., if it is available) _____ years
Standardised Test Results (such as CEFR, TOFEL, or IELTS scores, if it is available) _____

Please complete the following questions:

1. Can you tell me any situations where you have found difficulty in terms of learning English phrasal verbs?

2. Can you tell me how you learn English phrasal verbs? Please write down as many ways you can think of.

Appendix D. Pre-test paper

Please choose the best particle provided below for each of the following questions and write down the Chinese translation of each phrasal verb:

in out on off up down

Example:

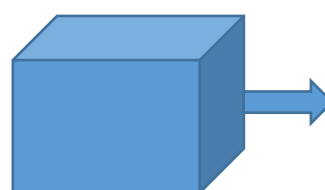
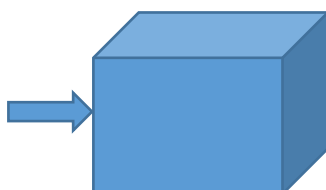
in	進帳	She has no money coming___and no funds.
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Particles	Chinese Translation	Questions
		1. I told him to leave and get___.
		2. Three of the buttons have come___my coat.
		3. When the tide comes___, the water in the sea gradually moves so that it covers more of the land.
		4. We tried to visit the Abbey but were put___by the queues.
		5. The news didn't come ___TV until an hour later.
		6. If an explosive device or a gun goes___, it explodes or fires.
		7. If the Conservatives got___, they might decide to change the policy.
		8. Stop complaining about the work and get___with it.
		9. If you kick the ball and it goes ____, the other team gets control.
		10. The superintendent put_____a notice on the door advising residents to conserve water.
		11. The aim was not to take_____valuable time with the usual boring pictures.
		12. At times when my work gets me_____, I like to fantasize about being a farmer.
		13. Firemen tried to free the injured and put_____the fire.
		14. I called the office and told them I would be going_____ today.
		15. I've decided to take next semester_____ and travel and write.
		16. They've put___time to keep the strike going.
		17. Don't take___more responsibilities than you can handle.
		18. Let's go_____to the roof deck and watch the fireworks.
		19. They plan to take all these buildings_____and turn the land into a park.
		20. They find a house, agree a price, and take_____a mortgage through their building society.
		21. By the time I walked to the pub, the whole heavens opened up and the rain started to come_____.
		22. If a computer goes_____, it stops functioning temporarily.
		23. He is likely to get_____with a small fine.
		24. I don't care how well you planned, something always comes that you didn't think of.
		25. Gazing up into his eyes, she seemed to take___all he said.
		26. The desert goes_____for miles in every direction.
		27. The truth is beginning to come_____about what happened.
		28. The army was called to put_____the rebellion.
		29. The band are hoping to put_____a U.K. show before the end of the year.
		30. I have got to get John_____, or he will be late for work.

In- Out in Phrasal Verbs

Target Phrasal Verbs

come in	go in	get in	put in	take in
come out	go out	get out	put out	take out



In-Out: Meanings of Space/ Time/ Metaphor

	Space	Time	Metaphor
In	<p>come in: Big waves will come in for some time after the storm.</p> <p>go in: The sun went in, and the breeze became cold.</p> <p>get in: We would have come straight here, except our flight got in too late.</p> <p>put in: The electrician put a new outlet in.</p> <p>take in: They will certainly need to take in plenty of liquid.</p>	<p>get in: The milk truck got six deliveries in before noon.</p> <p>put in: Wade was going to be paid a salary, instead of by the hour, whether he put in forty hours or not.</p>	<p>come in: My friend came in fifth place in the spelling contest, and I came in last.</p> <p>go in: I explained the procedure to the new mechanic many times, but it didn't go in.</p> <p>get in: I applied to cooking school and; fortunately, I got in.</p> <p>put in: Will you put in a good word for me at the next meeting?</p> <p>take in: Ethiopia's large territorial area takes in a population of more than 40 million people.</p>
Out	<p>come out: Please come out. We have to leave.</p> <p>go out: The tide was going out.</p> <p>get out: The students got their notebooks out and began writing.</p> <p>put out: Don't forget to put out the garbage.</p> <p>take out: Please take the trash out.</p>	n/a	<p>come out: So what makes a good marriage? Faithfulness comes out top of the list.</p> <p>go out: You do not go out to injure opponents.</p> <p>get out: I wanted to get out of the group, but they wouldn't let me.</p> <p>put out: He crossed to the bedside table and put out the light.</p> <p>take out: Rachel took me out for lunch.</p>

In-Class Task

Make sentences for the following phrasal verbs and specify what functions of the containers in each sentence:

Phrasal verb	Sentence	What is the 'container' in the sentence?
1. come in		
2. come out		
3. go in		
4. go out		
5. get in		
6. get out		
7. put in		
8. put out		
9. take in		
10. take out		

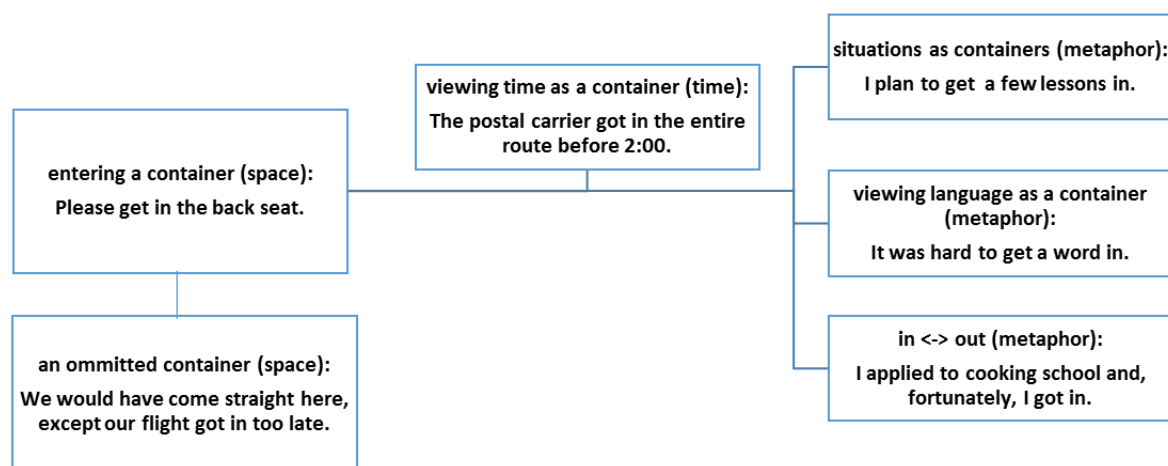
Appendix F. Worksheet 2

In- Out in Phrasal Verbs

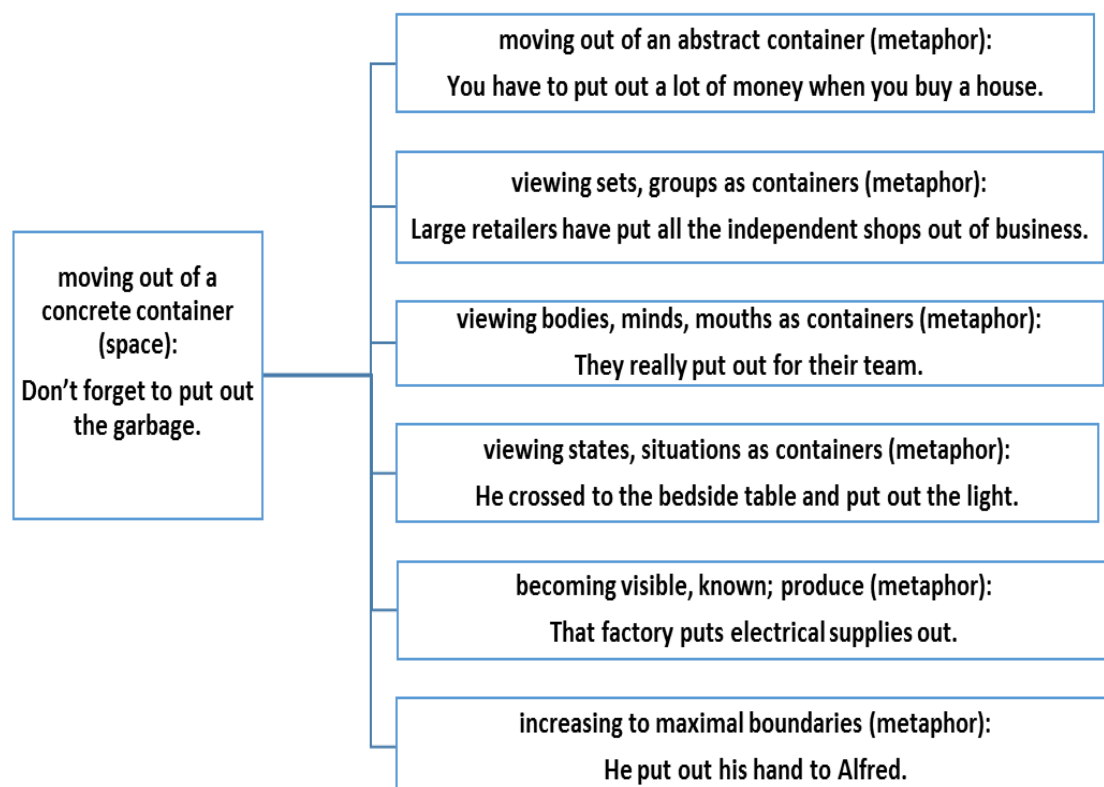
Target Phrasal Verbs

come in	go in	get in	put in	take in
come out	go out	get out	put out	take out

A Radial Category Diagram: get 'in'



A Radial Category Diagram: put 'out'



In-Out: Meanings of Space/ Time/ Metaphor

	Space	Time	Metaphor
In	<p>come in: Big waves will come in for some time after the storm.</p> <p>go in: The sun went in, and the breeze became cold.</p> <p>get in: We would have come straight here, except our flight got in too late.</p> <p>put in: The electrician put a new outlet in.</p> <p>take in: They will certainly need to take in plenty of liquid.</p>	<p>get in: The milk truck got six deliveries in before noon.</p> <p>put in: Wade was going to be paid a salary, instead of by the hour, whether he put in forty hours or not.</p>	<p>come in: My friend came in fifth place in the spelling contest, and I came in last.</p> <p>go in: I explained the procedure to the new mechanic many times, but it didn't go in.</p> <p>get in: I applied to cooking school and; fortunately, I got in.</p> <p>put in: Will you put in a good word for me at the next meeting?</p> <p>take in: Ethiopia's large territorial area takes in a population of more than 40 million people.</p>
Out	<p>come out: Please come out. We have to leave.</p> <p>go out: The tide was going out.</p> <p>get out: The students got their notebooks out and began writing.</p> <p>put out: Don't forget to put out the garbage.</p> <p>take out: Please take the trash out.</p>	n/a	<p>come out: So what makes a good marriage? Faithfulness comes out top of the list.</p> <p>go out: You do not go out to injure opponents.</p> <p>get out: I wanted to get out of the group, but they wouldn't let me.</p> <p>put out: He crossed to the bedside table and put out the light.</p> <p>take out: Rachel took me out for lunch.</p>

In-Class Task 1

Can you use one of the target phrasal verbs with 'In' to create a word map accompanied by sentences? A word map should cover spatial meaning(s), temporal meaning(s), and metaphorical meaning(s). **Temporal meanings may not be available.

come in	go in	get in	put in	take in
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In-Class Task 2

Can you use one of the target phrasal verbs with 'Out' to create a word map accompanied by sentences? A word map should cover spatial meaning (s), temporal meaning (s), and metaphorical meaning (s). **Temporal meanings may not be available.

come out	go out	get out	put out	take out
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Appendix G. Worksheet 3

In- Out in Phrasal Verbs

Target Phrasal Verbs

come in	go in	get in	put in	take in
come out	go out	get out	put out	take out

Frame Semantic Table: In (using 'put in' as an example)

situation	Who	put in	whom/ what	why
space	The electrician	put in	a new outlet	for the building
time	Wade	put in	40 hours	for a salary
metaphor	I	put in	a good word for you	for giving a piece of advice

Frame Semantic Table: Out (using 'take out' as an example)

situation	Who	take out	whom/ what	why
space	Please (you)	take out	the trash.	for cleaning the house
metaphor	Rachel	took me out	(me)	for lunch

In-Out: Meanings of Space/ Time/ Metaphor

	Space	Time	Metaphor
In	come in: Big waves will come in for some time after the storm. go in: The sun went in, and the breeze became cold. get in: We would have come straight here, except our flight got in too late. put in: The electrician put a new outlet in. take in: They will certainly need to take in plenty of liquid.	get in: The milk truck got six deliveries in before noon. put in: Wade was going to be paid a salary, instead of by the hour, whether he put in forty hours or not.	come in: My friend came in fifth place in the spelling contest, and I came in last. go in: I explained the procedure to the new mechanic many times, but it didn't go in. get in: I applied to cooking school and; fortunately, I got in. put in: Will you put in a good word for me at the next meeting? take in: Ethiopia's large territorial area takes in a population of more than 40 million people.
Out	come out: Please come out. We have to leave. go out: The tide was going out. get out: The students got their notebooks out and began writing. put out: Don't forget to put out the garbage. take out: Please take the trash out.	n/a	come out: So what makes a good marriage? Faithfulness comes out top of the list. go out: You do not go out to injure opponents. get out: I wanted to get out of the group, but they wouldn't let me. put out: He crossed to the bedside table and put out the light. take out: Rachel took me out for lunch.

In-Class Task

Group work: Use the five target phrasal verbs with 'In' to write a story.

come in	go in	get in	put in	take in
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Group work: Use the five target phrasal verbs with 'Out' to write a story.

come out	go out	get out	put out	take out
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On- Off in Phrasal Verbs

Target Phrasal Verbs

come on	go on	get on	put on	take on
come off	go off	get off	put off	take off



On-Off Meanings of Space/ Time/ Metaphor

	Space	Time	Metaphor
On	<p>go on: This road goes on from here through many more towns before reaching the ocean.</p> <p>get on: The kids got on their boots and played in the snow.</p> <p>put on: June put the lid on the pickle jar and put it in the fridge.</p> <p>take on: This is a brief stop to take on passengers and water.</p>	<p>go on: Renewable energy will become progressively more important as time goes on.</p> <p>get on: I'm nearly 31 and that's getting on a bit for a footballer.</p>	<p>come on: Come on Doreen, let's dance.</p> <p>go on: Going on the few symptoms that we could observe, we were able to diagnose the patient.</p> <p>get on: Livy's getting on very well in Russian. She learns very quickly.</p> <p>put on: The doctor put the patient on antibiotics.</p> <p>take on: No other organisation was able or willing to take on the job.</p>
Off	<p>come off: Please come off of that horse!</p> <p>go off: She went off by herself where no one could find her.</p> <p>get off: Let's get off the train at the next stop.</p> <p>put off: The captain ordered that the unruly passengers be put off the ship at the next port.</p> <p>take off: She took her hat off.</p>	<p>get off: At eight I said, 'I'm getting off now.'</p> <p>put off: I have to put off our meeting until a later time.</p> <p>take off: Mitchel's schedule had not permitted him to take time off.</p>	<p>come off: People are trying to come off tranquilizers.</p> <p>go off: Then the fire alarm went off. I just grabbed my clothes and ran out.</p> <p>get off: I told you. Get off the farm.</p> <p>put off: Her approach to the issue put off voters.</p> <p>take off: The discount dealer took ten percent off the normal price.</p>

In-Class Task

Make sentences for the following phrasal verbs and specify what functions of 'contact/support' in each sentence:

Phrasal verb	Sentence	What is the 'contact/support' in the sentence?
1. come on		
2. come off		
3. go on		
4. go off		
5. get on		
6. get off		
7. put on		
8. put off		
9. take on		
10 take off		

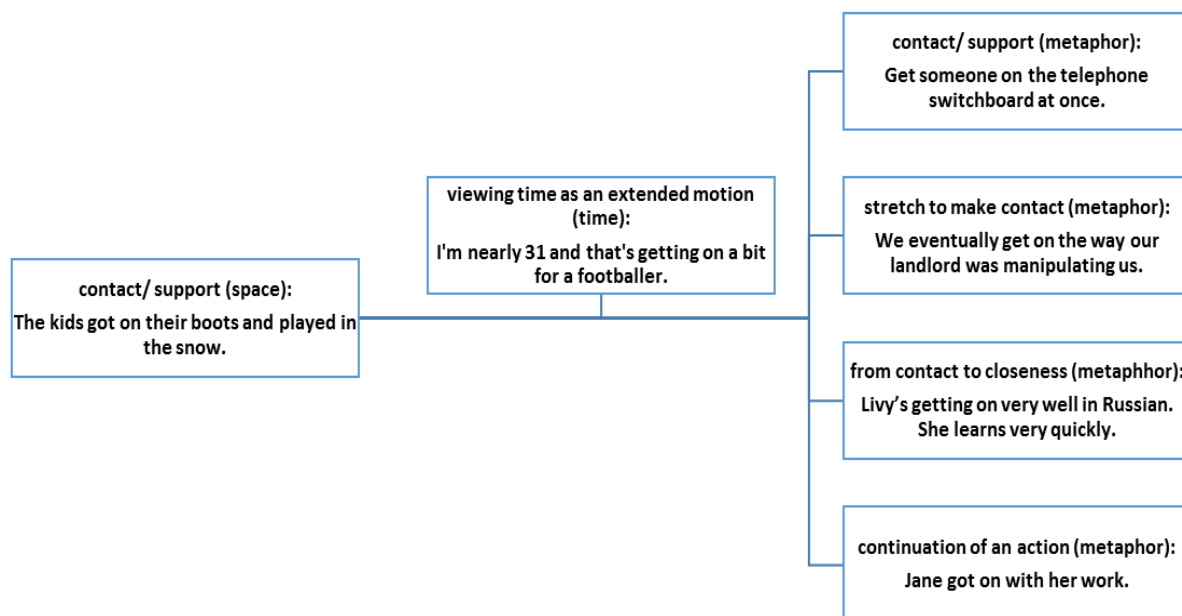
Appendix I. Worksheet 5

On- Off in Phrasal Verbs

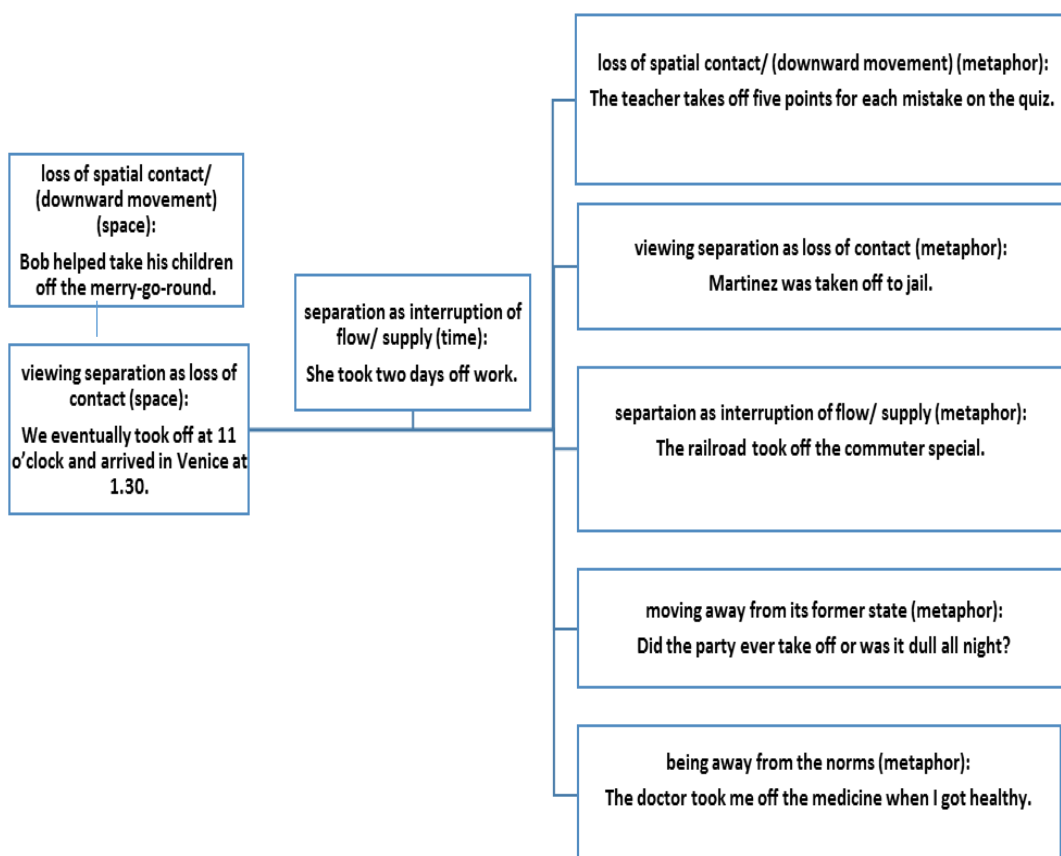
Target Phrasal Verbs

come on	go on	get on	put on	take on
come off	go off	get off	put off	take off

A Radial Category Diagram: get 'on'



A Radial Category Diagram: take 'off'



On-Off Meanings of Space/ Time/ Metaphor

	Space	Time	Metaphor
On	<p>go on: This road goes on from here through many more towns before reaching the ocean.</p> <p>get on: The kids got on their boots and played in the snow.</p> <p>put on: June put the lid on the pickle jar and put it in the fridge.</p> <p>take on: This is a brief stop to take on passengers and water.</p>	<p>go on: Renewable energy will become progressively more important as time goes on.</p> <p>get on: I'm nearly 31 and that's getting on a bit for a footballer.</p>	<p>come on: Come on Doreen, let's dance.</p> <p>go on: Going on the few symptoms that we could observe, we were able to diagnose the patient.</p> <p>get on: Livy's getting on very well in Russian. She learns very quickly.</p> <p>put on: The doctor put the patient on antibiotics.</p> <p>take on: No other organisation was able or willing to take on the job.</p>
Off	<p>come off: Please come off of that horse!</p> <p>go off: She went off by herself where no one could find her.</p> <p>get off: Let's get off the train at the next stop.</p> <p>put off: The captain ordered that the unruly passengers be put off the ship at the next port.</p> <p>take off: She took her hat off.</p>	<p>get off: At eight I said, 'I'm getting off now.'</p> <p>put off: I have to put off our meeting until a later time.</p> <p>take off: Mitchel's schedule had not permitted him to take time off.</p>	<p>come off: People are trying to come off tranquilizers.</p> <p>go off: Then the fire alarm went off. I just grabbed my clothes and ran out.</p> <p>get off: I told you. Get off the farm.</p> <p>put off: Her approach to the issue put off voters.</p> <p>take off: The discount dealer took ten percent off the normal price.</p>

In-Class Task 1

Can you use one of the target phrasal verbs with 'on' to create a word map accompanied by sentences? A word map should cover spatial meaning(s), temporal meaning(s), and metaphorical meaning(s). **Temporal meanings may not be available.

come on	go on	get on	put on	take on
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In-Class Task 2

Can you use one of the target phrasal verbs with 'Off' to create a word map accompanied by sentences? A word map should cover spatial meaning(s), temporal meaning(s), and metaphorical meaning(s). **Temporal meanings may not be available.

come off	go off	get off	put off	take off
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Appendix J. Worksheet 6

On- Off in Phrasal Verbs

Target Phrasal Verbs

come on	go on	get on	put on	take on
come off	go off	get off	put off	take off

Frame Semantic Table: On (using 'go on' as an example)

situation	Who/ what	go on	whom/ what	why
space	This road	goes on	from here through many more towns before reaching the ocean	for travellers to see a rural landscape
time	As time	goes on	renewable energy will become progressively more important	for people to think how important to save energy in a limited period of time
metaphor	Because the few symptoms	went on that we could observe,	we are able to diagnose the patient	for the appropriate medical treatment

Frame Semantic Table: Off (using 'take off' as an example)

situation	Who/ what	take off	whom/ what	why
space	She	took (her hat) off	her hat	for entering a room
time	Mitchel's schedule had not permitted him to	take time off	(time)	for a busy schedule
metaphor	The discount dealer	took 10% off	the normal price	for a cheaper price

On-Off Meanings of Space/ Time/ Metaphor

	Space	Time	Metaphor
On	<p>go on: This road goes on from here through many more towns before reaching the ocean.</p> <p>get on: The kids got on their boots and played in the snow.</p> <p>put on: June put the lid on the pickle jar and put it in the fridge.</p> <p>take on: This is a brief stop to take on passengers and water.</p>	<p>go on: Renewable energy will become progressively more important as time goes on.</p> <p>get on: I'm nearly 31 and that's getting on a bit for a footballer.</p>	<p>come on: Come on Doreen, let's dance.</p> <p>go on: Going on the few symptoms that we could observe, we were able to diagnose the patient.</p> <p>get on: Livy's getting on very well in Russian. She learns very quickly.</p> <p>put on: The doctor put the patient on antibiotics.</p> <p>take on: No other organisation was able or willing to take on the job.</p>
Off	<p>come off: Please come off of that horse!</p> <p>go off: She went off by herself where no one could find her.</p> <p>get off: Let's get off the train at the next stop.</p> <p>put off: The captain ordered that the unruly passengers be put off the ship at the next port.</p> <p>take off: She took her hat off.</p>	<p>get off: At eight I said, 'I'm getting off now.'</p> <p>put off: I have to put off our meeting until a later time.</p> <p>take off: Mitchel's schedule had not permitted him to take time off.</p>	<p>come off: People are trying to come off tranquilizers.</p> <p>go off: Then the fire alarm went off. I just grabbed my clothes and ran out.</p> <p>get off: I told you. Get off the farm.</p> <p>put off: Her approach to the issue put off voters.</p> <p>take off: The discount dealer took ten per cent off the normal price.</p>

In-Class Task

Group work: Use the five target phrasal verbs with 'On' to write a story.

come on	go on	get on	put on	take on
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Group work: Use the five target phrasal verbs with 'Off' to write a story.

come off	go off	get off	put off	take off
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Appendix K. Worksheet 7
Up-Down in Phrasal Verbs

Target Phrasal Verbs

come up	go up	get up	put up	take up
come down	go down	get down	put down	take down



Up-Down Meanings of Space/ Time/ Metaphor

	Space	Time	Metaphor
Up	<p>come up: It will be so great watching the sun come up.</p> <p>go up: The monkey went up the tree in no time.</p> <p>get up: Can you get yourself up, or should I call you?</p> <p>put up: He was putting up a new fence at his home.</p> <p>take up: The skirt is too long. I'll have to take it up.</p>	<p>go up: My new calendar for work only goes up to December.</p> <p>take up: I wouldn't want to take up too much of your time.</p>	<p>come up: We came up to Canada to look for wolves.</p> <p>go up: Gasoline prices are still going up.</p> <p>get up: Let's get a team up and enter the tournament.</p> <p>put up: I can't put up with that awful noise from next door.</p> <p>take up: We'll take each issue up separately.</p>
Down	<p>come down: The cold rain came down.</p> <p>go down: When the sun goes down, it goes below horizon.</p> <p>get down: Get your head down.</p> <p>put down: They put the boxes down on the floor.</p> <p>take down: Gil rose and went to his bookcase and took down a volume.</p>	<p>go down: She will go down in history as the greatest opera singer.</p>	<p>come down: All my silverware came down to me from my great-grandmother.</p> <p>go down: I went down and visited my family in Mexico.</p> <p>get down: Get your head down, you stayed up so late last night.</p> <p>put down: He bought an investment property for \$100,000 and put down \$20,000.</p> <p>take down: I took down his comments in shorthand.</p>

In-Class Task

Make sentences for the following phrasal verbs and specify what functions of the 'vertical movement' in each sentence:

Phrasal verb	Sentence	What is the 'vertical movement' in the sentence?
1. come up		
2. come down		
3. go up		
4. go down		
5. get up		
6. get down		
7. put up		
8. put down		
9. take up		
10 take down		

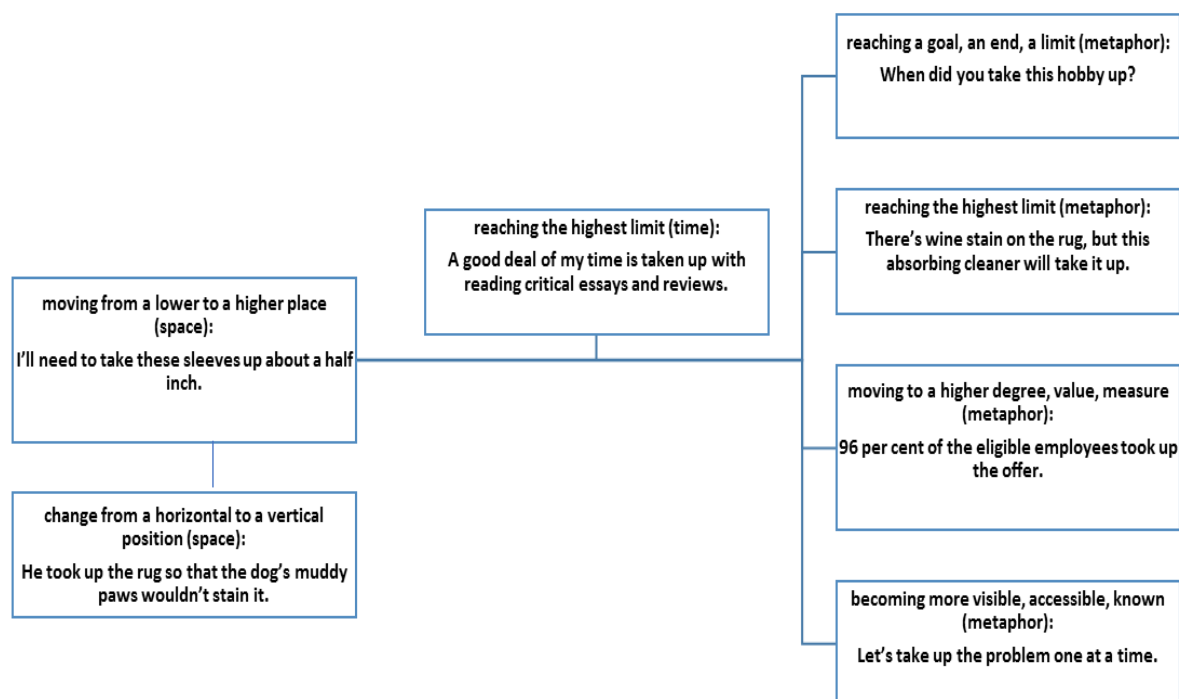
Appendix L. Worksheet 8

Up-Down in Phrasal Verbs

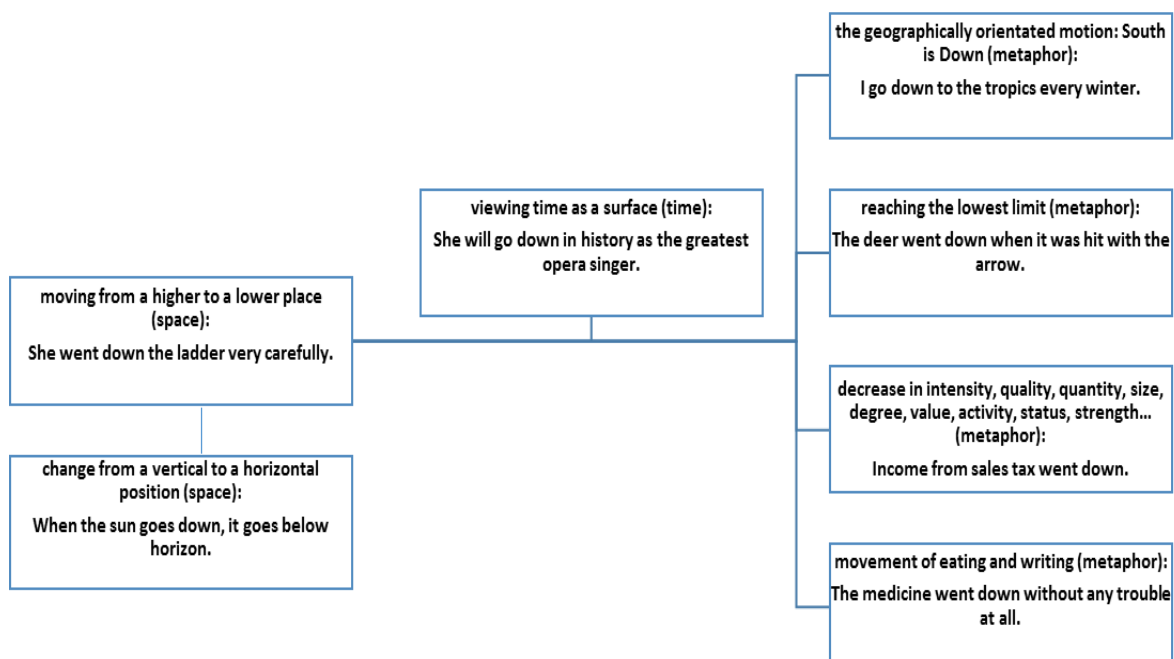
Target Phrasal Verbs

come up	go up	get up	put up	take up
come down	go down	get down	put down	take down

A Radial Category Diagram: take 'up'



A Radial Category Diagram: go 'down'



Up-Down Meanings of Space/ Time/ Metaphor

	Space	Time	Metaphor
Up	<p>come up: It will be so great watching the sun come up.</p> <p>go up: The monkey went up the tree in no time.</p> <p>get up: Can you get yourself up, or should I call you?</p> <p>put up: He was putting up a new fence at his home.</p> <p>take up: The skirt is too long. I'll have to take it up.</p>	<p>go up: My new calendar for work only goes up to December.</p> <p>take up: I wouldn't want to take up too much of your time.</p>	<p>come up: We came up to Canada to look for wolves.</p> <p>go up: Gasoline prices are still going up.</p> <p>get up: Let's get a team up and enter the tournament.</p> <p>put up: I can't put up with that awful noise from next door.</p> <p>take up: We'll take each issue up separately.</p>
Down	<p>come down: The cold rain came down.</p> <p>go down: When the sun goes down, it goes below horizon.</p> <p>get down: Get your head down.</p> <p>put down: They put the boxes down on the floor.</p> <p>take down: Gil rose and went to his bookcase and took down a volume.</p>	<p>go down: She will go down in history as the greatest opera singer.</p>	<p>come down: All my silverware came down to me from my great-grandmother.</p> <p>go down: I went down and visited my family in Mexico.</p> <p>get down: Get your head down, you stayed up so late last night.</p> <p>put down: He bought an investment property for \$100,000 and put down \$20,000.</p> <p>take down: I took down his comments in shorthand.</p>

In-Class Task 1

Can you use one of the target phrasal verbs with 'Up' to create a word map accompanied by sentences? A word map should cover spatial meaning(s), temporal meaning(s), and metaphorical meaning(s). **Temporal meanings may not be available.

come up	go up	get up	put up	take up
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In-Class Task 2

Can you use one of the target phrasal verbs with 'Down' to create a word map accompanied by sentences? A word map should cover spatial meaning(s), temporal meaning(s), and metaphorical meaning(s). **Temporal meanings may not be available.

come down	go down	get down	put down	take down
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Appendix M. Worksheet 9

Up-Down in Phrasal Verbs

Target Phrasal Verbs

come up	go up	get up	put up	take up
come down	go down	get down	put down	take down

Frame Semantic Table: Up (using 'take up' as an example)

situation	Who/ what	take up	whom/ what	why
space	I have to	take (the skirt) up	the skirt	for making it shorter
time	I wouldn't want to	take up	too much of your time	for leaving more time for yourself
metaphor	We'll	take (each issue) up	each issue separately	for solving the problems

Frame Semantic Table: Down (using 'go down' as an example)

situation	Who/ what	go down	whom/what	why
space	When the sun	goes down	it goes below horizon	for moving its position in the sky
time	She will	go down	in history as the greatest opera singer	for people to remember her
metaphor	I	went down	and visited my family in Mexico	for enjoying the tropical weather

Up-Down Meanings of Space/ Time/ Metaphor

	Space	Time	Metaphor
Up	come up: It will be so great watching the sun come up. go up: The monkey went up the tree in no time. get up: Can you get yourself up, or should I call you? put up: He was putting up a new fence at his home. take up: The skirt is too long. I'll have to take it up.	go up: My new calendar for work only goes up to December. take up: I wouldn't want to take up too much of your time.	come up: We came up to Canada to look for wolves. go up: Gasoline prices are still going up. get up: Let's get a team up and enter the tournament. put up: I can't put up with that awful noise from next door. take up: We'll take each issue up separately.
Down	come down: The cold rain came down. go down: When the sun goes down, it goes below horizon. get down: Get your head down. put down: They put the boxes down on the floor. take down: Gil rose and went to his bookcase and took down a volume.	go down: She will go down in history as the greatest opera singer.	come down: All my silverware came down to me from my great-grandmother. go down: I went down and visited my family in Mexico. get down: Get your head down, you stayed up so late last night. put down: He bought an investment property for \$100,000 and put down \$20,000. take down: I took down his comments in shorthand.

In-Class Task

Group work: Use the five target phrasal verbs with 'up' to write a story.

come up	go up	get up	put up	take up
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Group work: Use the five target phrasal verbs with 'Down' to write a story.

come down	go down	get down	put down	take down
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Appendix N. Post-test paper and answer keys

In each question, first write down the best particle: **in**, **out**, **on**, **off**, **up** or **down**. Second, select **S** (meaning of space), **I** (meaning of time), or **M** (meaning of metaphor) for the meaning of the particles. Third, provide the Chinese translation for the phrasal verbs.

Example:

in	M	進帳	She has no money coming___and no funds.
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Particle	S/T/ M	Chinese Translation	Question
			1. By the time I walked to the pub, the whole heavens opened up and the rain started to come_____.
			2. If a computer goes_____, it stops functioning temporarily.
			3. He is likely to get_____with a small fine.
			4. I don't care how well you planned, something always comes that you didn't think of.
			5. Gazing up into his eyes, she seemed to take_____all he said.
			6. The desert goes_____for miles in every direction.
			7. The truth is beginning to come_____ about what happened.
			8. The army was called to put_____the rebellion.
			9. The band are hoping to put_____a U.K. show before the end of the year.
			10. I have got to get John_____, or he will be late for work.
			11. The aim was not to take_____valuable time with the usual boring pictures.
			12. At times when my work gets me_____, I like to fantasize about being a farmer.
			13. Firemen tried to free the injured and put_____the fire.
			14. I called the office and told them I would be going_____today.
			15. I've decided to take next semester_____ and travel and write.
			16. They've put_____time to keep the strike going.
			17. Don't take_____more responsibilities than you can handle.
			18. Let's go_____to the roof deck and watch the fireworks.
			19. They plan to take all these buildings_____and turn the land into a park.
			20. They find a house, agree a price, and take_____a mortgage through their building society.
			21. I told him to leave and get_____.
			22. Three of the buttons have come_____my coat.
			23. When the tide comes_____, the water in the sea gradually moves so that it covers more of the land.
			24. We tried to visit the Abbey but were put_____by the queues.
			25. The news didn't come _____TV until an hour later.
			26. If an explosive device or a gun goes_____, it explodes or fires.
			27. If the Conservatives got_____, they might decide to change the policy.
			28. Stop complaining about the work and get_____with it.
			29. If you kick the ball and it goes _____, the other team gets control.
			30. The superintendent put_____a notice on the door advising residents to conserve water.

Answer Keys:**N.B. The question number in the brackets is the original order in the pre-test paper.**

down	S	1. (21.) By the time I walked to the pub, the whole heavens opened up and the rain started to come_____.
down	M	2. (22.) If a computer goes_____, it stops functioning temporarily.
off	M	3. (23.)He is likely to get_____with a small fine.
up	M	4. (24.) I don't care how well you planned, something always comes_____that you didn't think of.
in	M	5. (25.) Gazing up into his eyes, she seemed to take_____all he said.
on	S	6. (26.) The desert goes_____for miles in every direction.
out	M	7. (27.) The truth is beginning to come_____ about what happened.
down	M	8. (28.) The army was called to put_____the rebellion.
on	M	9. (29.) The band are hoping to put_____a U.K. show before the end of the year.
up	M	10. (30.) I have got to get John_____, or he will be late for work.
up	T	11. (11.) The aim was not to take_____valuable time with the usual boring pictures.
down	M	12. (12.) At times when my work gets me_____, I like to fantasize about being a farmer.
out	M	13. (13.) Firemen tried to free the injured and put_____the fire.
in	S	14. (14.) I called the office and told them I would be going__in today.
off	T	15. (15.) I've decided to take next semester_____ and travel and write.
in	T	16. (16.) They've put_____time to keep the strike going.
on	M	17. (17.) Don't take____more responsibilities than you can handle.
up	S	18. (18.) Let's go_____to the roof deck and watch the fireworks.
down	S	19. (19.) They plan to take all these buildings_____and turn the land into a park.
out	M	20. (20.) They find a house, agree a price, and take_____a mortgage through their building society.
out	S	21. (1.) I told him to leave and get_.
off	S	22. (2.) Three of the buttons have come____my coat.
in	S	23. (3.) When the tide comes_____, the water in the sea gradually moves so that it covers more of the land.
off	M	24. (4.) We tried to visit the Abbey but were put_____by the queues.
on	M	25. (5.) The news didn't come _____TV until an hour later.
off	M	26. (6.) If an explosive device or a gun goes_____, it explodes or fires.
in	M	27. (7.) If the Conservatives got____, they might decide to change the policy.
on	M	28. (8.) Stop complaining about the work and get_____with it.
out	M	29. (9.) If you kick the ball and it goes _____, the other team gets control.
up	S	30. (10.) The superintendent put_____a notice on the door advising residents to conserve water.

Appendix O. Interview guide

Suggested Questions	Prompts
1. Do you feel that understanding the meanings of the particles has helped you to understand the meanings of the phrasal verbs?)	<ul style="list-style-type: none"> • Yes, how? • No, why?
2. Which part of the training sessions do you find the most useful to help you understand the phrasal verbs?	<ul style="list-style-type: none"> • The theory? • The in-class task? • Others?
3. Do you find it helpful to understand a phrasal verb through its different senses (i.e. meanings of space, meanings of time and meaning of metaphor)? Which sense do you find it most helpful?	<ul style="list-style-type: none"> • Spatial senses? • Temporal senses? • Metaphorical senses?
4. Do you think the training sessions give you new ideas of learning phrasal verbs?	<ul style="list-style-type: none"> • Yes, how? • No, why?
5. Do you think which part(s) of the training sessions that can be improved?	<ul style="list-style-type: none"> • The theory? • The in-class task? • Others?
6. After the training sessions, will you use different ways to learn phrasal verbs than before?	<ul style="list-style-type: none"> • Yes, why? • No, why?
7. Are there anything else you would like to say?	